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Yellowstone 88,
Musselshell and
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Counties, Montana

FINAL REPORT

MUSSELSHELL - YELLOWSTONE 88
MUSSELSHELL AND YELLOWSTONE COUNTIES, MONTANA

MT A/E 88-46-123

FEBRUARY 12, 1990

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FINAL REPORT

MUSSELSHELL - YELLOWSTONE 88
MUSSELSHELL AND YELLOWSTONE
COUNTIES, MONTANA

MT A/E 88-46-123

FEBRUARY 12, 1990

Prepared for:

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Reclamation Specialist
Abandoned Mine Reclamation Bureau
Montana Department of State Lands
1625 Eleventh Avenue
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Project Engineer

Hank Lowe
Bill Wolff
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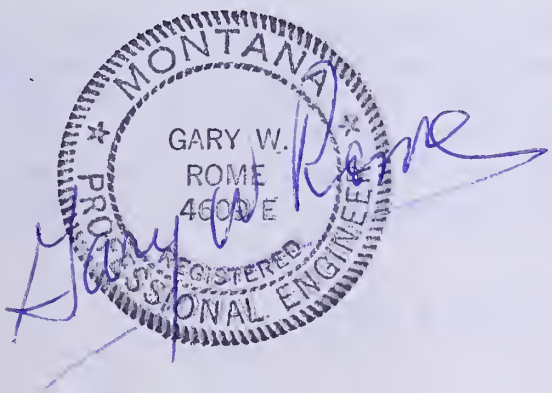

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MUSSELSHELL - YELLOWSTONE 88
FINAL REPORT

I. INTRODUCTION

A. Project Objectives

The Musselshell - Yellowstone 88 Project was designed to: eliminate various hazards related to abandoned coal mines; reclaim lands disturbed by these abandoned operations; extinguish several coal outcrop fires; and perform corrective maintenance on two previously reclaimed sites. There were eleven project sites in the initial bid package. To the original package of eleven sites were added two small open adits, three coal seam fires, and one maintenance project for a total of seventeen sites. Major items of work included coal slack pile neutralization and burial, subsidence backfilling, closure of adits, extinguishing outcrop fires, debris removal, stream channel reconstruction, and revegetation.

B. Site Description and Location

1. PERRY

The Perry site is located on the west bank of a north-south oriented tributary to Alkali Creek. More particularly, the site is located in the NW¼NE¼ of Section 10, T8N, R31E, Musselshell County, Montana. The topography is smooth and rolling with an elevation change of only 26 feet and an average elevation of 3286 feet. The vegetation consists of range grasses, sagebrush, cedar bushes, pine and cottonwood trees. The main land use is cattle grazing.

2. KLEIN REVEGETATION

The Klein Revegetation site is located on the north side of Deadman Coulee, one-half mile east of the townsite of Klein, Montana. The site is located in the NW¼SE¼ of Section 36, T8N, R25E, Musselshell County, Montana. The edges of the coulee are moderately steep and layered in sandstone. The elevation change is 90 feet above the coulee bottom, with the average elevation being 3350 feet. Vegetation consists of grasses, sagebrush, cedar bushes, and pine trees. The primary land use is horse grazing.

3. JANICH 17 UPPER

The Janich 17 Upper site is located on a small eastern tributary of the East Fork Razor Creek, a minor tributary to the Yellowstone River. The site is located in the SW¼ of Section 17, T5N, R27E, Yellowstone County, Montana. The mine portal was located at an elevation of 3840 feet, with relief of 70 feet from the lowest coal slack pile to the adit. The prime vegetation is grasses, sagebrush, cactus, cedar bushes and pine trees. The main land use is cattle grazing.

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B. Site Description and Location (Cont.)

4. JANICH 17 LOWER

The Janich 17 Lower site is located downstream from Janich 17 Upper on the same tributary of the East Fork Razor Creek, a minor tributary to the Yellowstone River. The site is more particularly located in the SW¼ of Section 17, T5N, R27E, Yellowstone County, Montana. The two adits at this site were located at an elevation of 3660 feet on the south side of the drainage channel. Coal slack piles were located near the bottom, as well as on the north bank, of the channel. The prime vegetation is grasses, sagebrush, cactus, cedar bushes and pine trees. The land is used for cattle grazing.

5. JANICH 18

The Janich 18 site is located near the east bank of East Fork Razor Creek in the E½NE¼ of Section 18, T5N, R27E, Yellowstone County, Montana. An adit and coal slack pile were located just below a sandstone outcrop at an elevation of 3650 feet. The major land use is cattle grazing. Vegetation consists of grasses, sagebrush, cactus, cedar bushes, and pine trees.

6. JANICH 20 UPPER

The Janich 20 Upper site adit and shaft were located on a small eastern tributary of the East Fork Razor Creek, a minor tributary to the Yellowstone River. Two coal slack piles were located nearby in the same small tributary. This project site is located in the SE¼NE¼ of Section 20, T5N, R27E, Yellowstone County, Montana. The average elevation at the site is 3700 feet. The vegetation in Section 20 is made up of grasses, sagebrush, cactus, cedar bushes, and pine trees. The land use is primarily cattle grazing.

7. JANICH 20 LOWER

The Janich 20 Lower site is located 0.6 miles southeast of the Upper site at the base of a horseshoe-shaped sandstone-capped hill. The debris and coal slack were located at an elevation of 3720 feet in the NW¼SE¼ of Section 20. The vegetation in Section 20 is made up of grasses, sagebrush, cactus, cedar bushes, and pine trees. The primary land use is cattle grazing.

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B. Site Description and Location (Cont.)

8. JANICH 20 FIRE

The Janich 20 Fire site is located 1000 feet west of the Janich 20 Lower site. The burning coal seam is located at an elevation of 3760 feet on the point of a small ridge in the NW¼SE¼ of Section 20, T5N, R27E, Yellowstone County, Montana. The vegetation in Section 20 is made up of grasses, sagebrush, cactus, cedar bushes, and pine trees. Land use is primarily cattle grazing.

9. JANICH 20/29

The Janich 20/29 site is located at the head of a small tributary to the East Fork Razor Creek. Adits were located under a sandstone terrace along the head of the coulee. The average elevation of the site is 3745 feet with a topographic relief of approximately 50 feet. The disturbance areas fall in the SE¼SE¼ Section 20, T5N, R27E, Yellowstone County, Montana. Vegetation is made up of grasses, sagebrush, and pine trees. The land is used primarily for cattle grazing.

10. JANICH 29

Janich 29 is located in a broad drainage southwest of a man-made dam. The drainage is a tributary to the East Fork Razor Creek. The average elevation at the site is 3478 feet. The elevation change is only 30 feet throughout the site. The mine is located in the SW¼ of Section 29, T5N, R27E, Yellowstone County, Montana. The main vegetation in the area is grasses, sagebrush, cedar bushes and a few pine trees. The main land use is cattle grazing.

11. SHEPHERD

The Shepherd abandoned mine site is located near the head of Railroad Creek in the E½SW¼ of Section 24, T6N, R27E, Yellowstone County, Montana. The main disturbance area was located on a ridge extending out into Railroad Creek and next to what is now a man-made dam and stock pond. Also, a small open adit was located in the hillside across the stock pond from the main disturbance area. The vegetation consists of grasses, sagebrush, cactus, and pine trees. The prime use of the land is cattle grazing.

B. Site Description and Location (Cont.)

12. JANICH 20 NEW ADIT

The Janich 20 New Adit site is located on the nose of a small ridge just west of the Janich 20 Upper Site on a small eastern tributary of the East Fork Razor Creek, a minor tributary to the Yellowstone River. This project site is located in the SW¼NE¼ of Section 20, T5N, R27E, Yellowstone County, Montana. The adit was situated under a sandstone outcrop on the south-facing slope. Vegetation is made up of grasses, sagebrush, Rocky Mountain Juniper and Ponderosa pine. The land is used primarily for cattle grazing.

13. BROWN/CHARTER COAL FIRE

The Brown/Charter Coal Fire site is located in a small southeastern tributary of Fattig Creek approximately one mile below the top of the drainage. The site is in the NW¼NW¼ of Section 12, T6N, R27E, Musselshell County, Montana. Vegetation is made up of grasses, sagebrush, Rocky Mountain Juniper and Ponderosa pine. The land is used primarily for cattle grazing.

14. BROWN RANCH INCLINE

The Brown Ranch Incline site is located in a small southeastern tributary of Fattig Creek approximately one mile below the top of the drainage. The site is in the NW¼NW¼ of Section 12, T6N, R27E, Musselshell County, Montana. It is situated on a southwesterly facing slope 45-feet off the stream channel and about 25-feet above it. The opening is immediately below a near vertical sandstone outcrop. This site is about 500 feet east-southeast and across the drainage from the Brown/Charter Coal Fire site. Because of the steep slope in which the incline occurs, vegetation immediately nearby is sparse, but in the area there are grasses, sagebrush, Rocky Mountain Juniper and Ponderosa pine. There is a spring-fed water hole in the drainage below the incline. The land primarily is used for cattle grazing.

15. WADE #2 COAL FIRE

The Wade #2 Coal Fire is located in a bank on the north side of Cow Gulch. It is situated in the SW¼NW¼ of Section 10, T6N, R28E, Musselshell County, Montana. It is approximately ¼ mile east of the reclaimed Wade Mine. Vegetation is made up of grasses, sagebrush, Rocky Mountain Juniper and Ponderosa pine. The land is used primarily for cattle grazing.

B. Site Description and Location (Cont.)

16. CARLSON COAL FIRE

The Carlson Coal Fire is located near the head of the eastern-most branch of West Fork Creek. The fire was burning in two areas along an east facing slope about 20-feet above the ephemeral stream channel. The site is situated in the NW¼NW¼ of Section 12, T5N, R25E, Musselshell County, Montana. It is just across the valley from the reclaimed Antelope Mine. Vegetation is made up of grasses, Rocky Mountain Juniper and Ponderosa pine. The land is used primarily for cattle grazing.

17. ANTELOPE MAINTENANCE

The Antelope Maintenance site is located near the head of the eastern-most branch of West Fork Creek. The site is situated in the NW¼NW¼ of Section 12, T5N, R25E, Musselshell County, Montana. The Antelope Mine was reclaimed in the summer of 1985 as part of the Bull Mountain Coal Field Project. Vegetation is made up of grasses, Rocky Mountain Juniper and Ponderosa pine. The lower portions of the coulee in which the site is located are utilized for seasonal cattle grazing and the bench land above the site is under cultivation. However, the upper reaches of the coulee where the site is located are very steep restricting its utilization primarily to wildlife habitation.

C. Land Ownership and Access

Site and vicinity maps for all the sites follow this section. Access routes are marked, so that one easily can locate the sites.

1. PERRY

The land around and access to the Perry site are presently owned by James E. Wilson, Melstone, Montana 59054 at phone 406/358-2478. Mr. Wilson acquired title to the property on February 28, 1957. The Wilsons live approximately 4600 feet east of the mine site on the County Road between Melstone and Custer.

2. KLEIN REVEGETATION SITE

The Klein site is owned by Mr. Merill Armstrong, 15 Mineral Drive, Roundup, Montana 59072 at phone 406/323-1464. Access to the site is from US Highway 87 at the town of Klein, Montana. The site is approximately 2800 feet east of the town of Klein.

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C. Land Ownership and Access (Cont.)

3. JANICH 17 UPPER
4. JANICH 17 LOWER

The Janich 17 Upper and Lower sites are owned by Nick and Clara Janich (Clara Janich is now deceased). Mr. and Mrs. Janich acquired title to all of Section 17 on October 30, 1963. The Janich residence is at 483 Old Divide Road, Box 431, Roundup, Montana 59072 at phone 406/323-1848. The residence is approximately 1.7 miles northeast of the southern junction of US Highway 87 and the Old Divide Road. Access to Section 17 is through Sections 6 and 7, both of which are owned by the US Government and managed by the BLM, 810 East Main, Billings, Montana 59105 at phone 406/657-6262. The access route is shown on the site plans.

5. JANICH 18

The Janich 18 site is on land (E½ Section 18) owned by Nick and Clara Janich, who acquired title to the land on January 8, 1969. See the Janich 17 paragraph for the address and location of the Janich residence. Access to the Janich 18 site is the same as described in the Janich 17 description and as shown on the site plans.

6. JANICH 20 UPPER
7. JANICH 20 LOWER
8. JANICH 20 FIRE

The Janich 20 Upper, Lower, and Fire sites are located in Section 20, owned by the US Government. Access to these three sites is through Sections 6 and 7 also owned by the US Government and through the E½ of Section 18 owned by Nick Janich. The Government land is managed by the BLM, 810 East Main, Billings, Montana 59105 at phone 406/657-6262.

9. JANICH 20/29

Section 20 is owned by the US Government and managed by the BLM. Section 29 is owned by Nick Janich. Mr. and Mrs. Janich acquired title to Section 29 on December 5, 1958. The actual access route is shown on the site plans.

10. JANICH 29

The land ownership for Janich 29 is Nick and Clara Janich, 483 Old Divide Road, Box 341, Roundup, Montana 59072 at phone 406/323-1848. The access to the site is shown on the site plans.

C. Land Ownership and Access (Cont.)

11. SHEPHERD

The Shepherd site is located is in Section 24, all of which is owned by the Charter Ranch Inc, except for the NE¼ SE¼. Mrs. Anne Charter received title to this property on May 3, 1955, and transferred title to the Charter Ranch Inc. on September 18, 1976. The ranch is managed by Steve Charter, Charter Ranch Inc., Route 1, Shepherd, Montana 59079 at phone 406/947-2151. Access to the site is through Sections 2 and 14, T6N, R27E, owned by Burlington Northern Co. and managed by the Glacier Park Co., c/o Mr. Jim Bishop, Glacier Park Co., P.O. Box 579, Miles City, Montana 59301 at phone 406/232-1274. The access route is shown on the site plans for the Shepherd Mine.

12. JANICH 20 NEW ADIT

The Janich 20 NEW ADIT site is located on land owned by the US Government. Access to this sites is through Sections 6 and 7 also owned by the US Government and through the E½ of Section 18 owned by Nick Janich, 483 Old Divide Road, Box 341, Roundup, Montana 59072 at phone 406/323-1848. The Government land is managed by the BLM, 810 East Main, Billings, Montana 59105 at phone 406/657-6262.

13. BROWN/CHARTER COAL FIRE
14. BROWN RANCH INCLINE

The Brown/Charter Coal Fire and the Brown Ranch Incline sites are located on land owned by CONSOL Land Development Co., P.O. Box 98, Decker, Montana. James D. Sandvig is the contact at that office at phone 406/757-2285. Raymond Hillman currently leases this land and resides alongside the Fattig Creek Road in the NE¼NW¼ of Section 25, T7N, R27E. The turnoff to the access road to the sites is about ½ mile southwest of the residence along the Fattig Creek Road. The access road to the sites is restricted by a locked gate. Raymond Hillman must be contacted to gain access to the sites at Box 165, Musselshell, Montana 59059 or phone 406/947-3220.

15. WADE #2 COAL FIRE

The Wade #2 Coal Fire site is located on land owned by CONSOL Land Development Co., similar to the Brown/Charter and Brown Ranch Incline sites. Raymond Hillman also leases this land. The turnoff to the Wade site is about 1½ miles past the Hillman residence on the Fattig Creek Road. This access road also is restricted by a locked gate. Raymond Hillman must be contacted to gain access to the site. His address is given above.

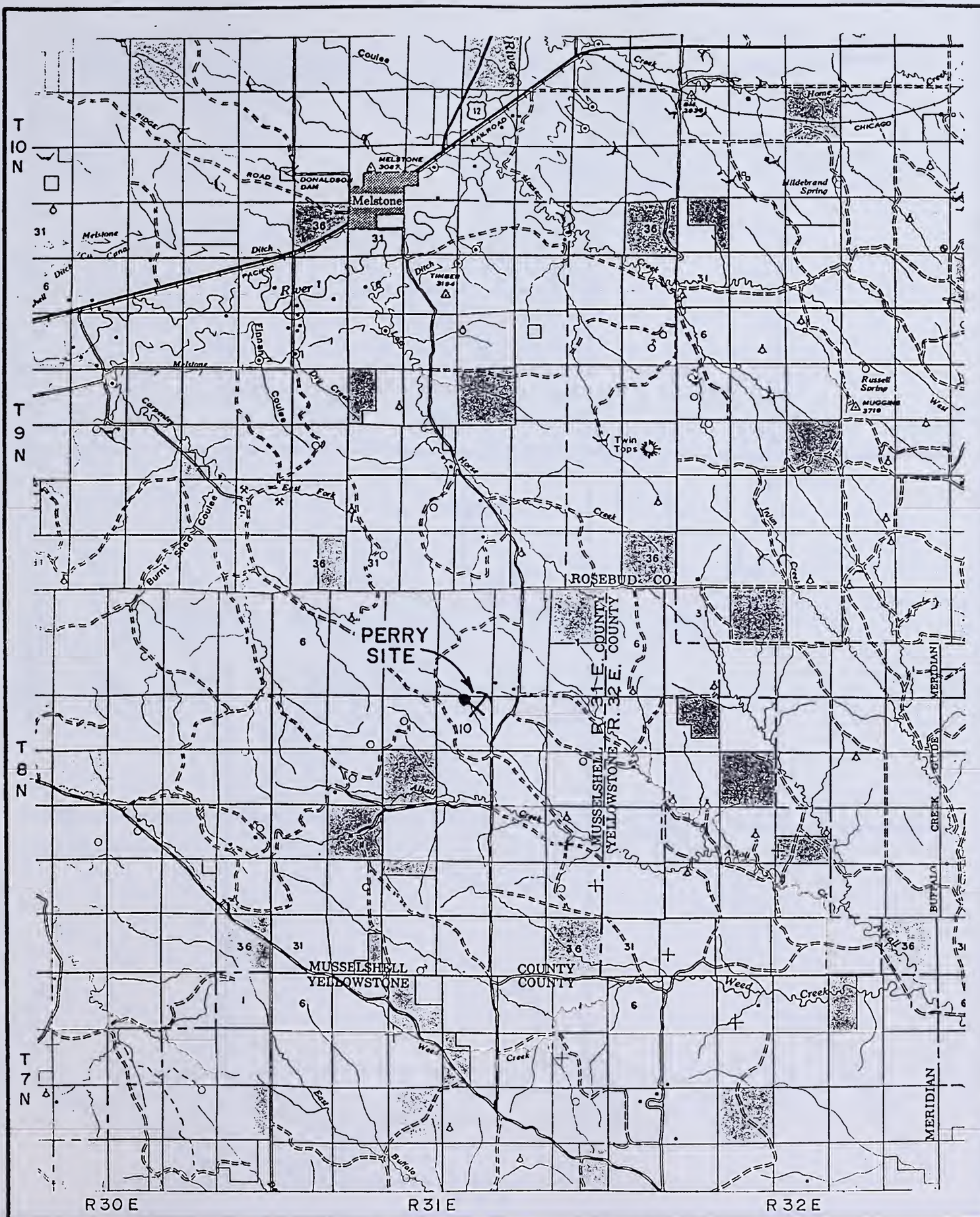
C. Land Ownership and Access (Cont.)

16. CARLSON COAL FIRE

The Carlson Coal Fire is located on land owned by Gerry and Della Carlson, 1719 Gold Creek Road, Roundup, Montana 59072 at phone 406/667-2131. Access to the site is via the private ranch road owned by the Carlsons. This road intersects the Gold Creek Road near the center of Section 2, T5N, R25E and proceeds to the Carlson residence about ¼ mile to the south.

17. ANTELOPE MAINTENANCE

The Antelope Maintenance site is located on land owned by Gerry and Della Carlson, 1719 Gold Creek Road, Roundup, Montana 59072 at phone 406/667-2131. Access to the site is via a road which intersects the Gold Creek Road near the west edge of Section 1, T5N, R25E and proceeds to the abandoned mine site less than ½ mile to the south.



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

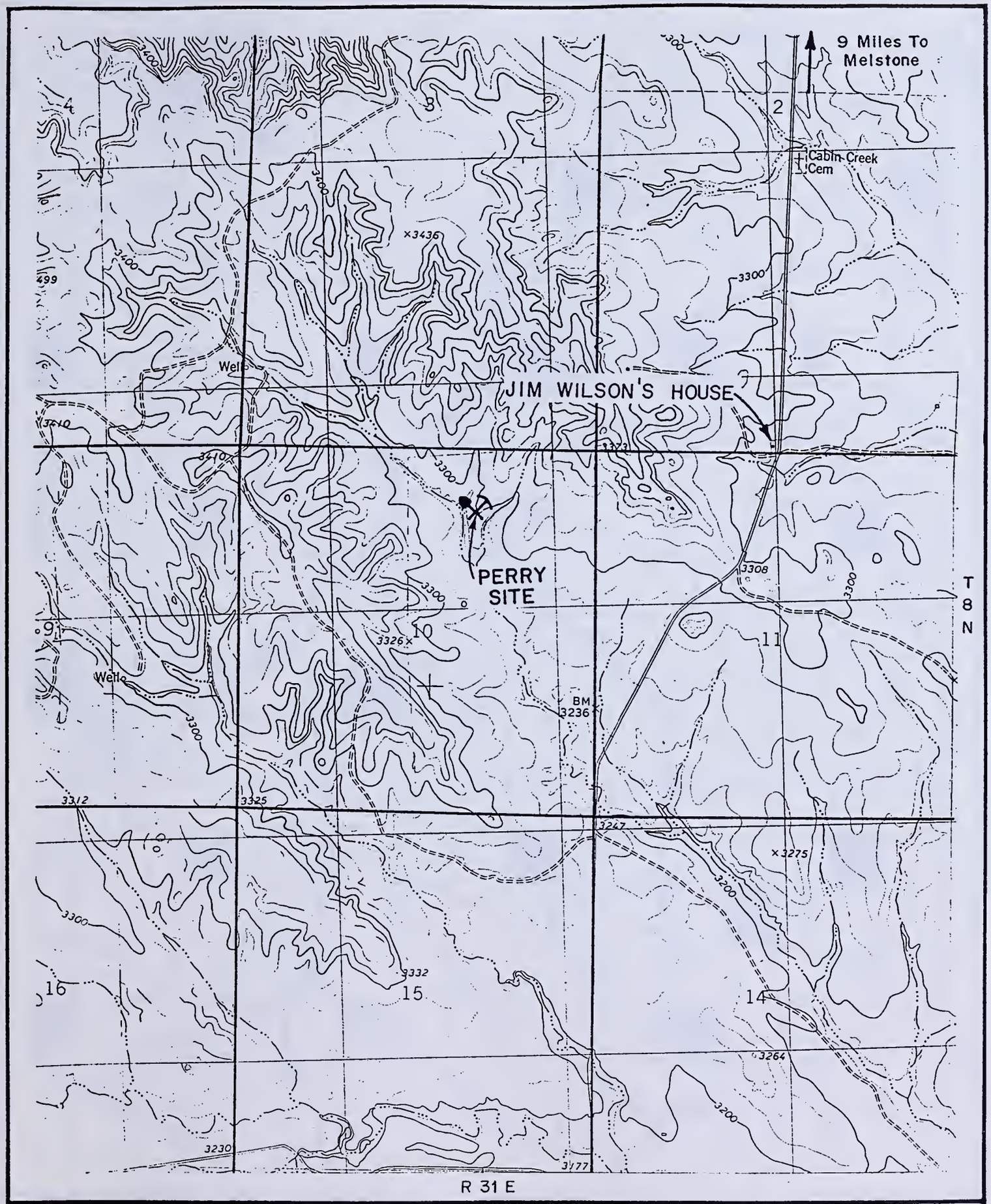
VICINITY MAP

SITE PERRY

MUSSELSHELL COUNTY, MT; TOWNSHIP 8 N RANGE 31 E

SECTION(S) 10

MAP SCALE: 1" = 2.5 Miles



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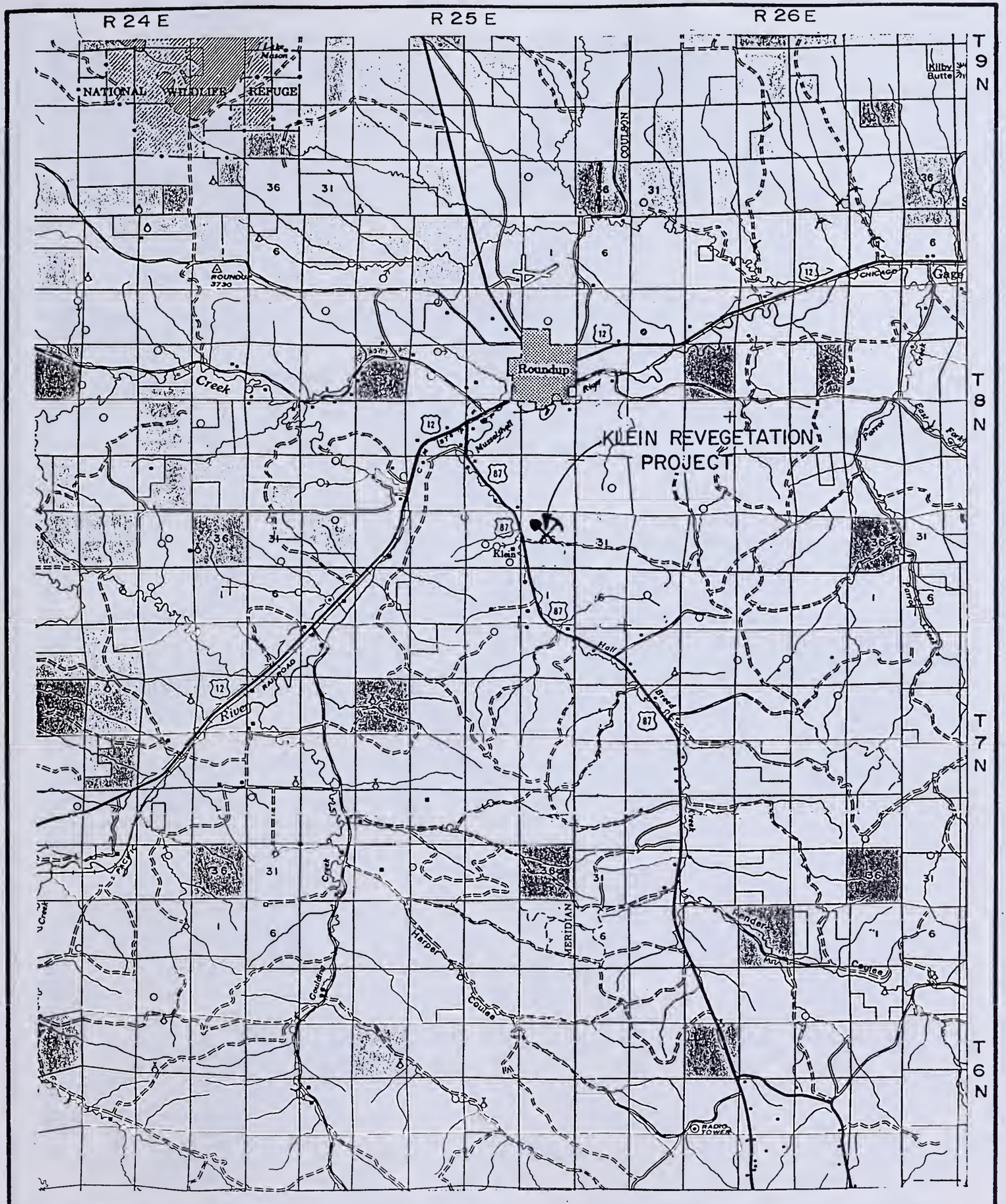
SITE MAP

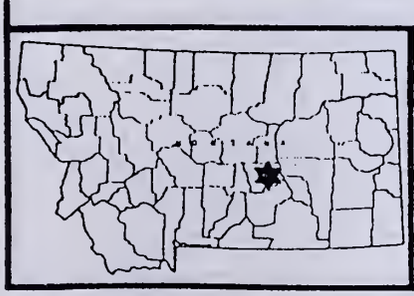
SITE PERRY

MUSSELSHELL COUNTY, MT; TOWNSHIP 8 N RANGE 31 E

SECTION(S) 10

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET WEED CREEK WEST





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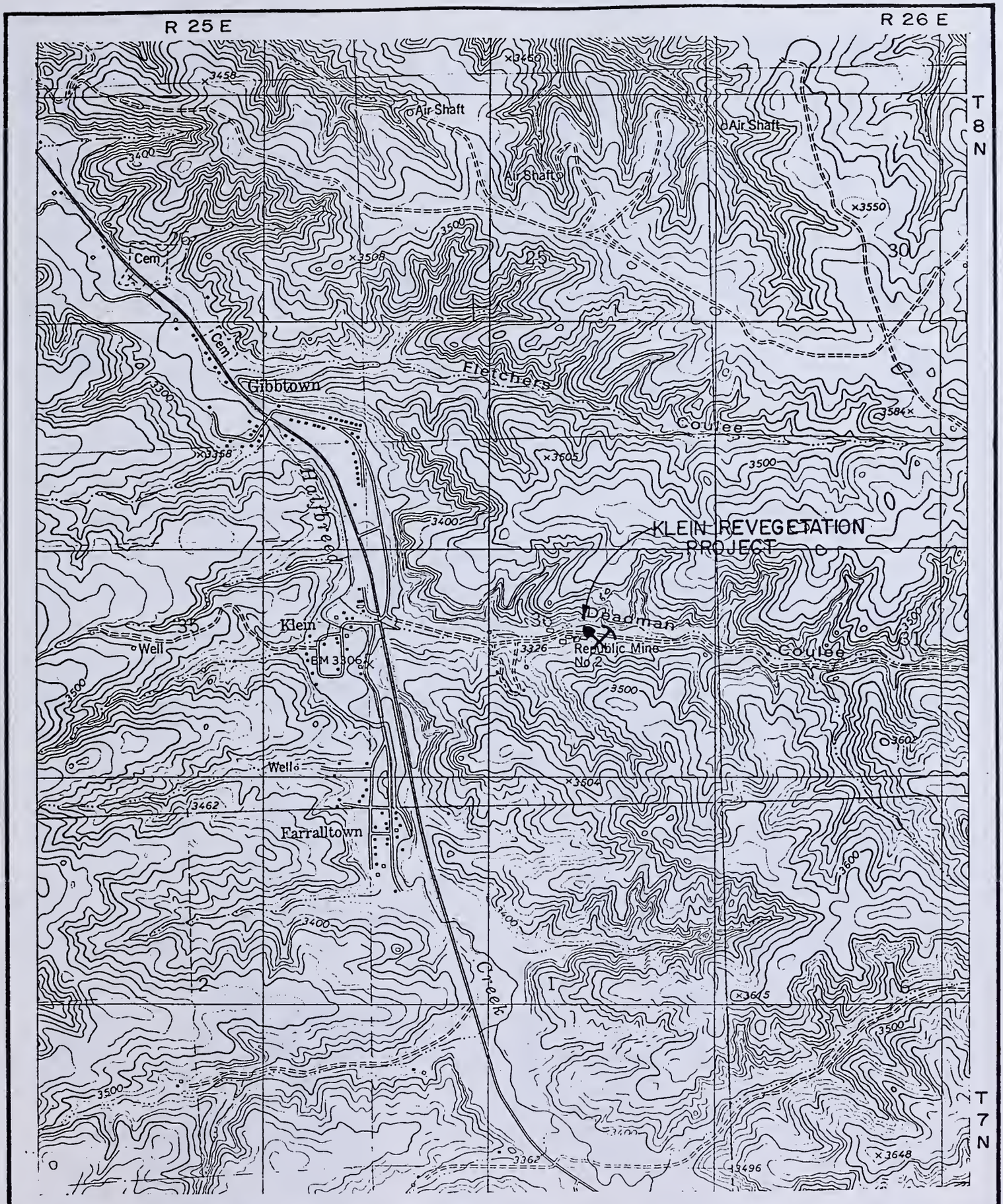
VICINITY MAP

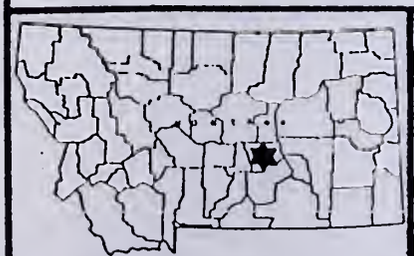
SITE KLEIN REVEGETATION PROJECT

MUSSELSHELL COUNTY, MT; TOWNSHIP 8N RANGE 25 E

SECTION(S) 36

MAP SCALE: 1" = 2.5 Miles





STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

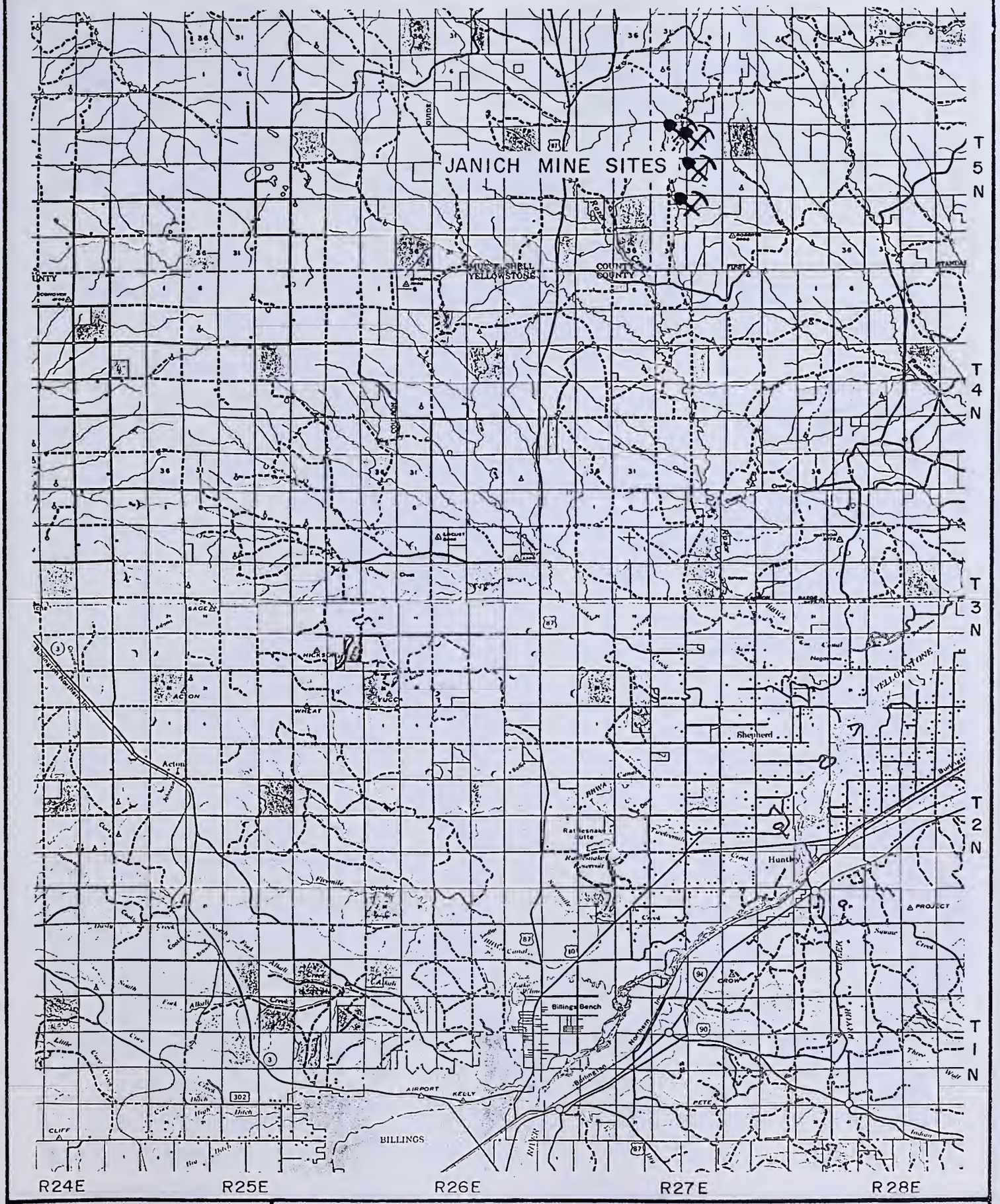
SITE MAP

SITE KLEIN REVEGETATION PROJECT

MUSSELSHELL COUNTY, MT; TOWNSHIP 8N RANGE 25E

SECTION(S) 36

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET ROUNDUP, MT



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
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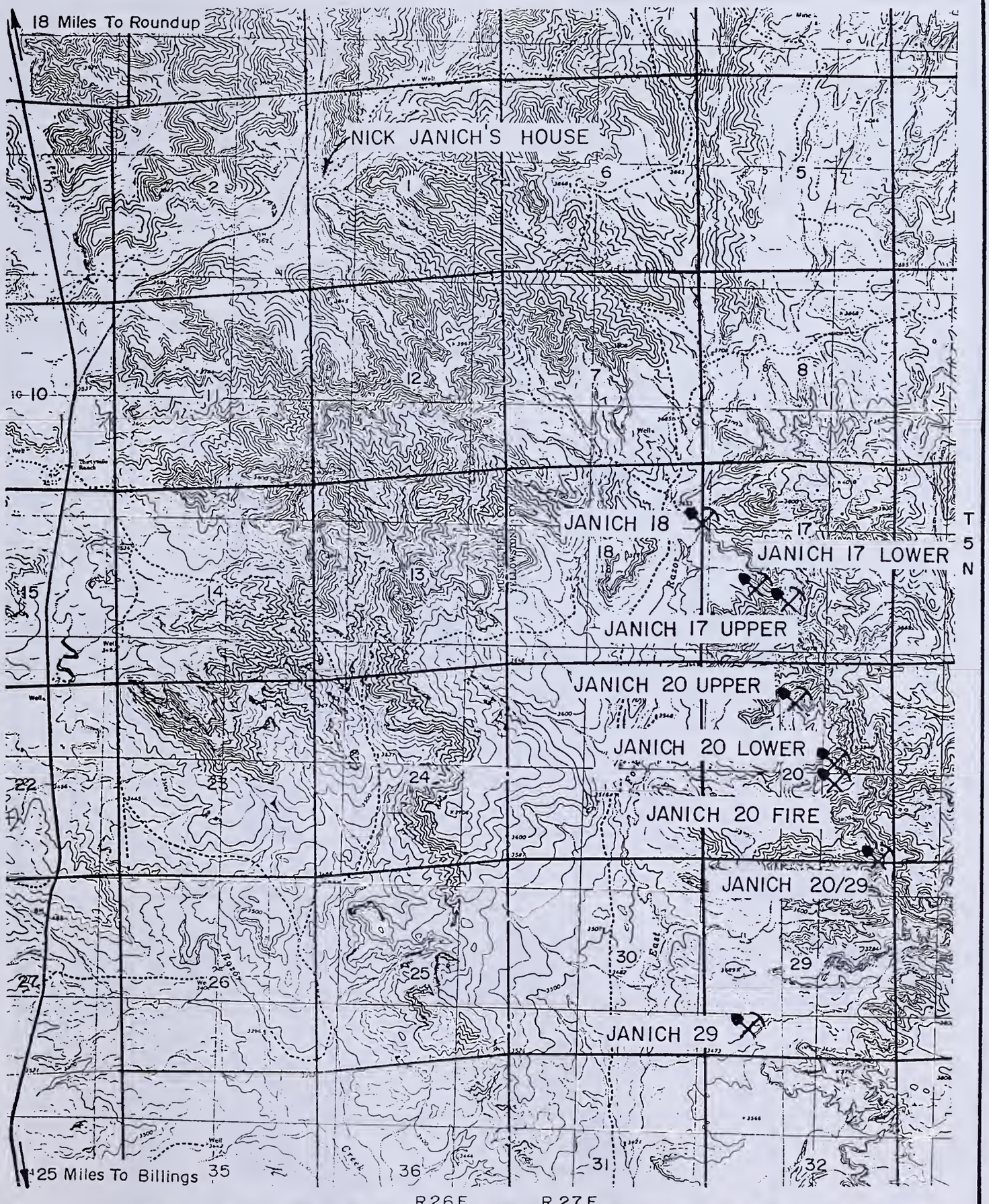
VICINITY MAP

SITE JANICH MINES

YELLOWSTONE COUNTY, MT; TOWNSHIP 5 N RANGE 27 E

SECTION(S) 17, 18, 20, 29

MAP SCALE: 1" = 4 Miles



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ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

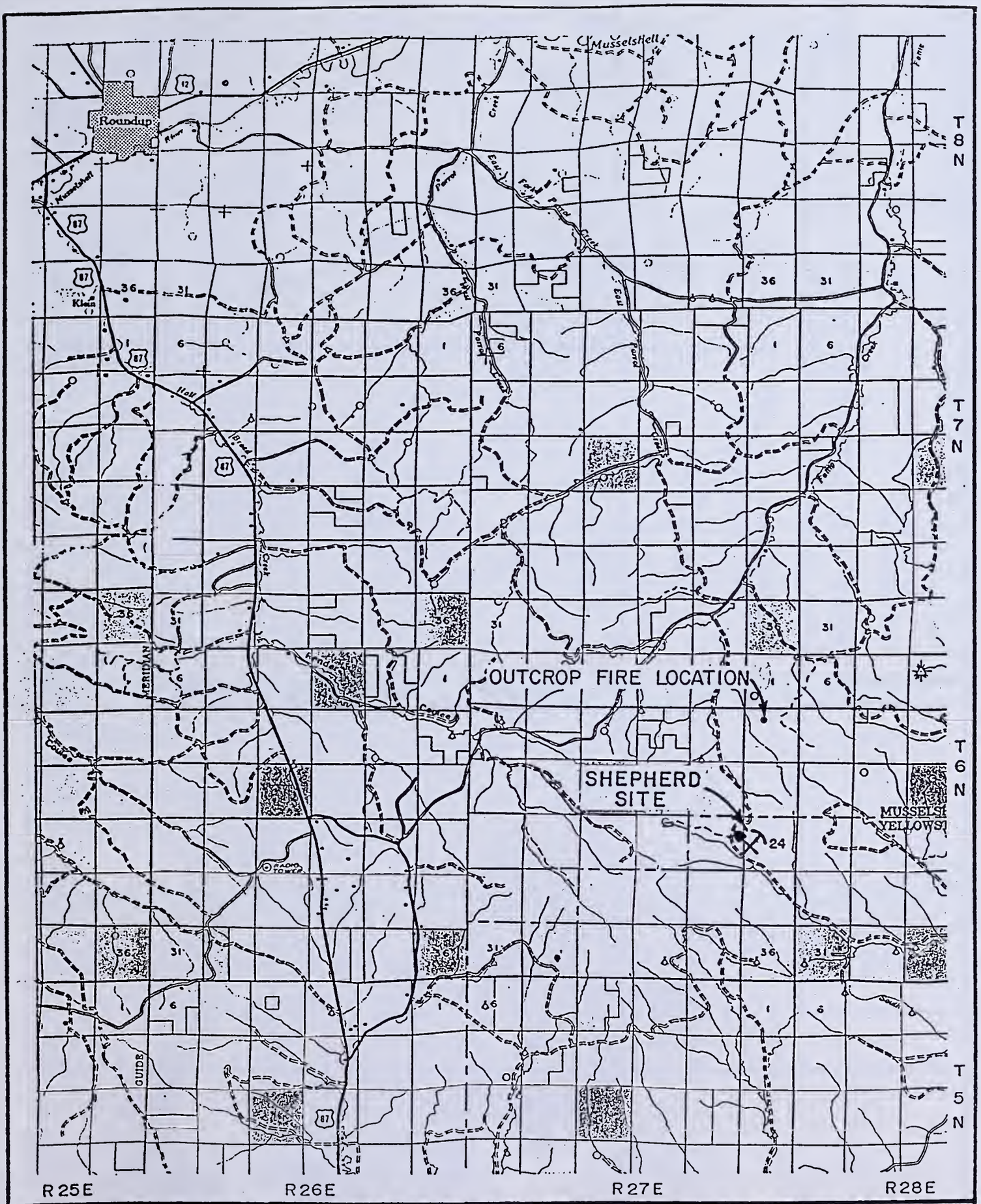
SITE MAP

SITE JANICH MINES

YELLOWSTONE COUNTY, MT; TOWNSHIP 5 N RANGE 27E

SECTION(S) 17, 18, 20, & 29

MAP SCALE: 1" = 3900' U.S.G.S. QUAD SHEET PARK COULEE & DUNN MOUNTAIN SOUTH



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

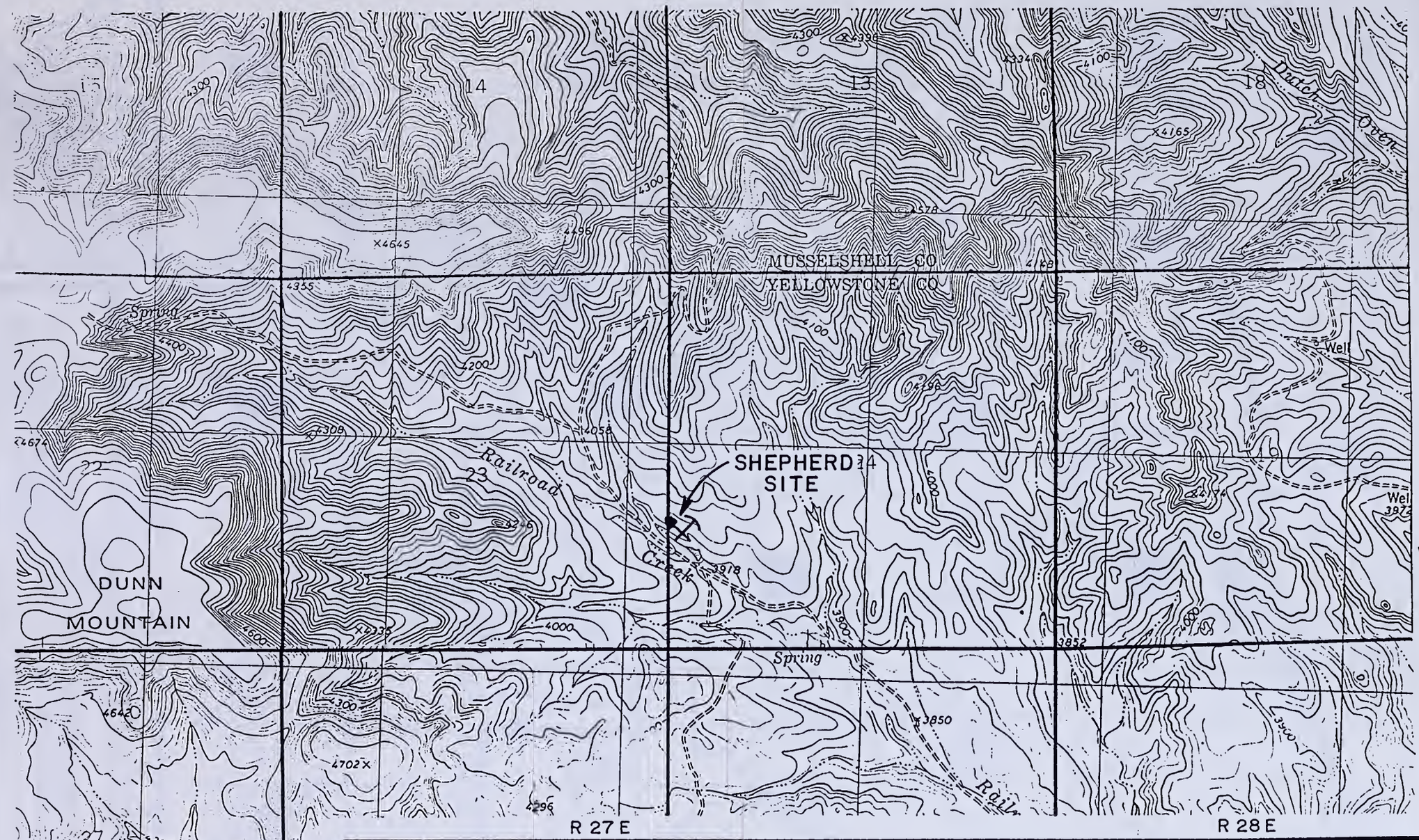
VICINITY MAP

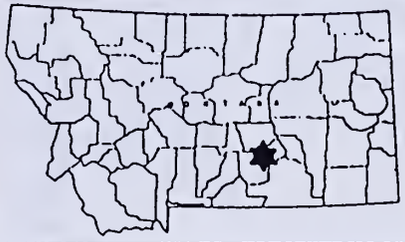
SITE SHEPHERD

YELLOWSTONE COUNTY, MT; TOWNSHIP 6 N RANGE 27 E

SECTION(S) 24

MAP SCALE: 1" = 2.5 Miles





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ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

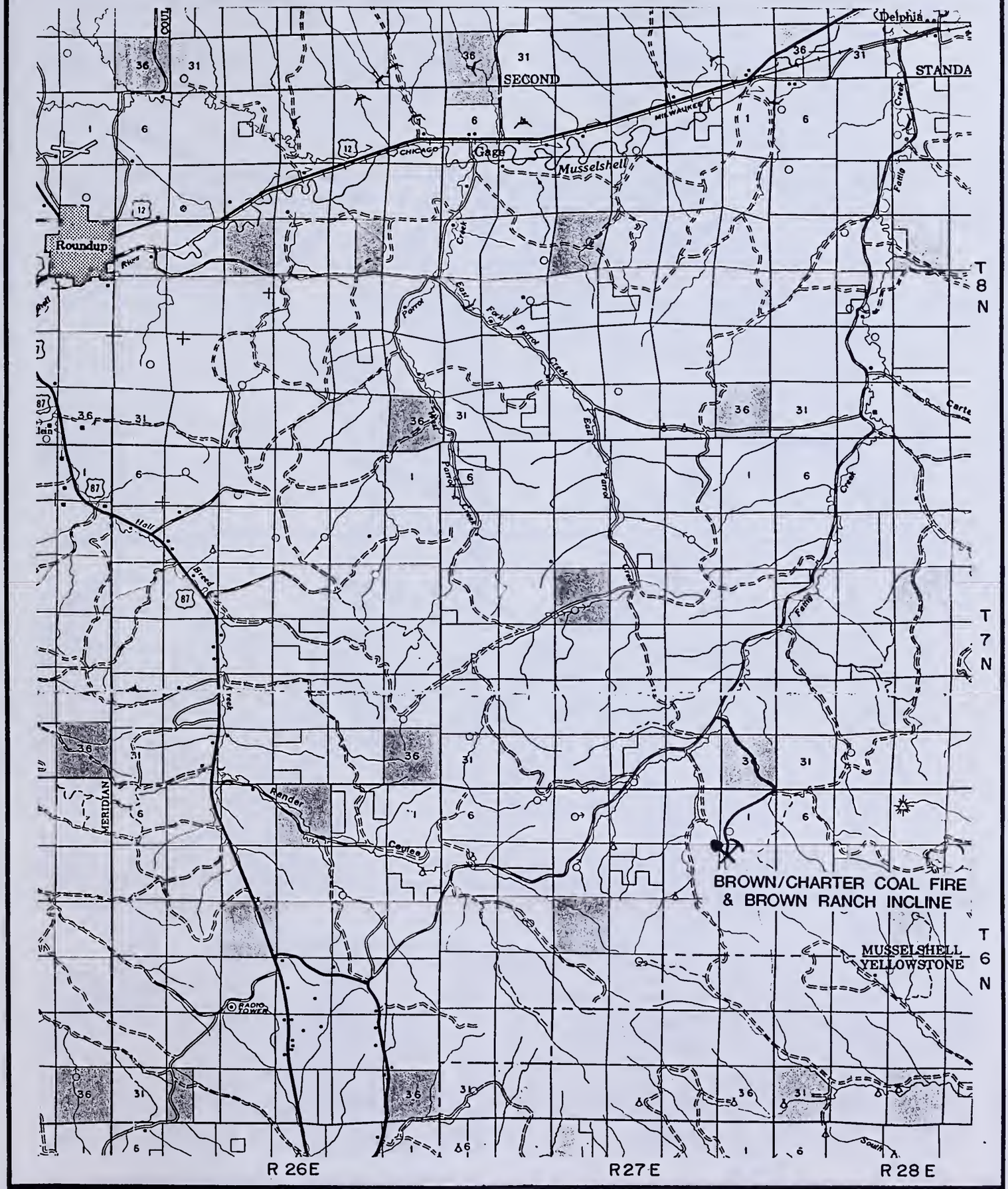
SITE MAP

SITE SHEPHERD

YELLOWSTONE COUNTY, MT; TOWNSHIP 6N RANGE 27E

SECTION(S) 24

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET DUNN MOUNTAIN NORTH & DUNN MOUNTAIN SOUTH



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

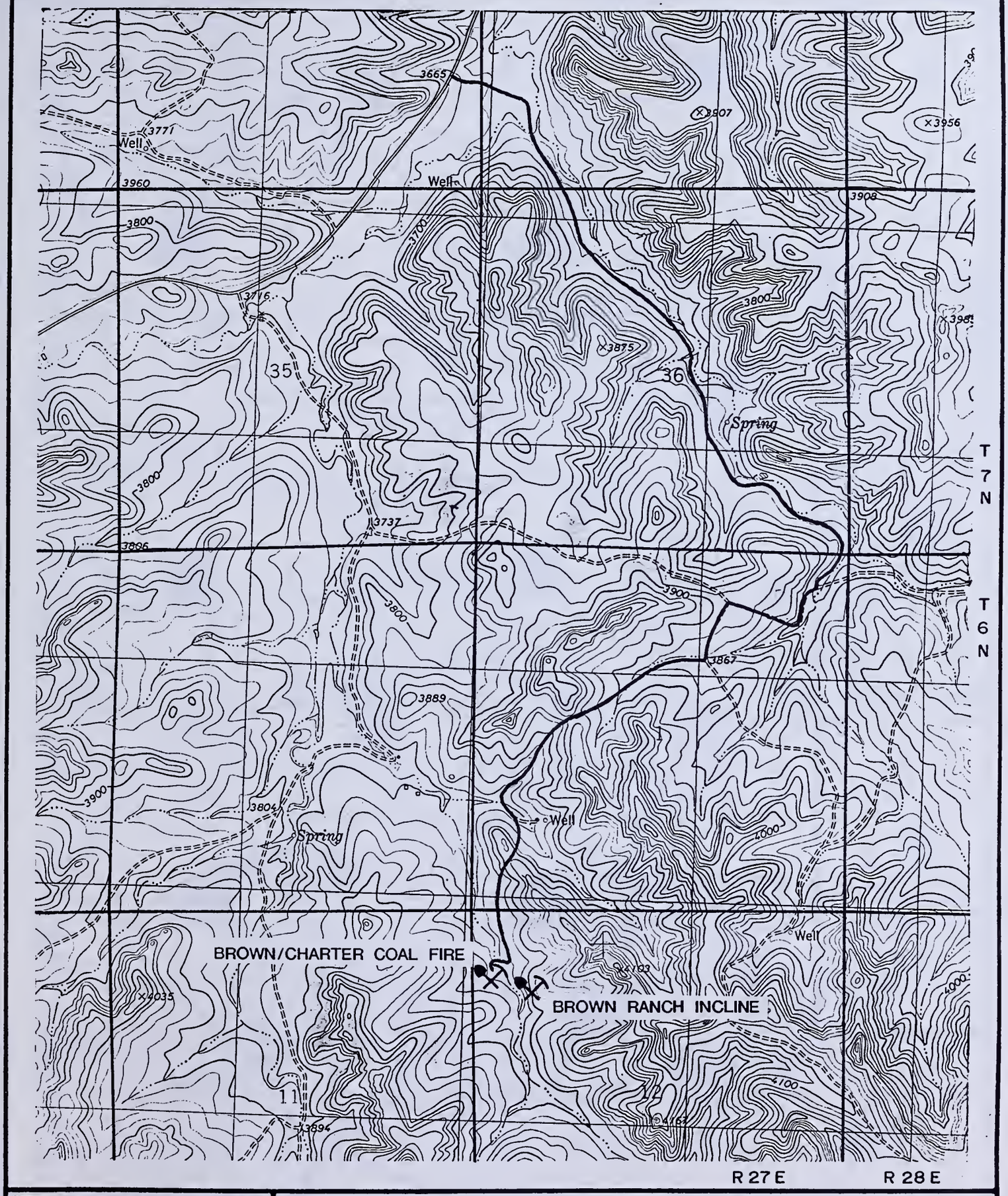
VICINITY MAP

SITE BROWN/CHARTER COAL FIRE & BROWN RANCH INCLINE

MUSSELSHELL COUNTY, MT; TOWNSHIP 6N RANGE 27E

SECTION(S) 12 NW1/4

MAP SCALE: 1" = 2.5 Miles



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

SITE MAP

SITE BROWN/CHARTER COAL FIRE & BROWN RANCH INCLINE

MUSSELSHELL COUNTY, MT; TOWNSHIP 6N RANGE 27E

SECTION(S) 12 NW1/4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET DUNN MOUNTAIN NORTH

STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU — RECLAMATION DIVISION

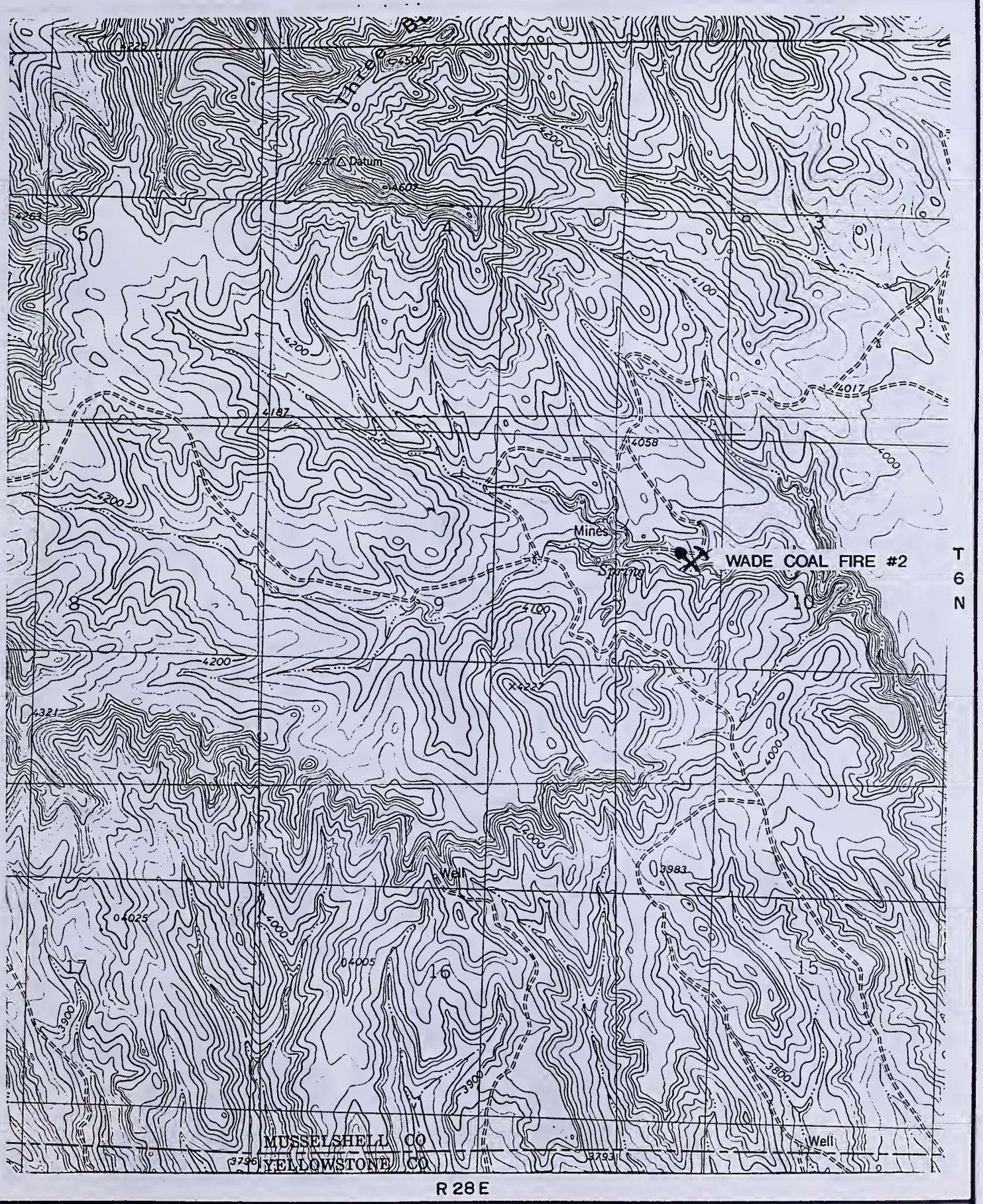
VICINITY MAP

SITE WADE COAL FIRE #2

MUSSELSHELL COUNTY, MT; TOWNSHIP 6N RANGE 28E

SECTION(S) 10 S1/2 NW1/4

MAP SCALE: 1" = 2.5 Miles



STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

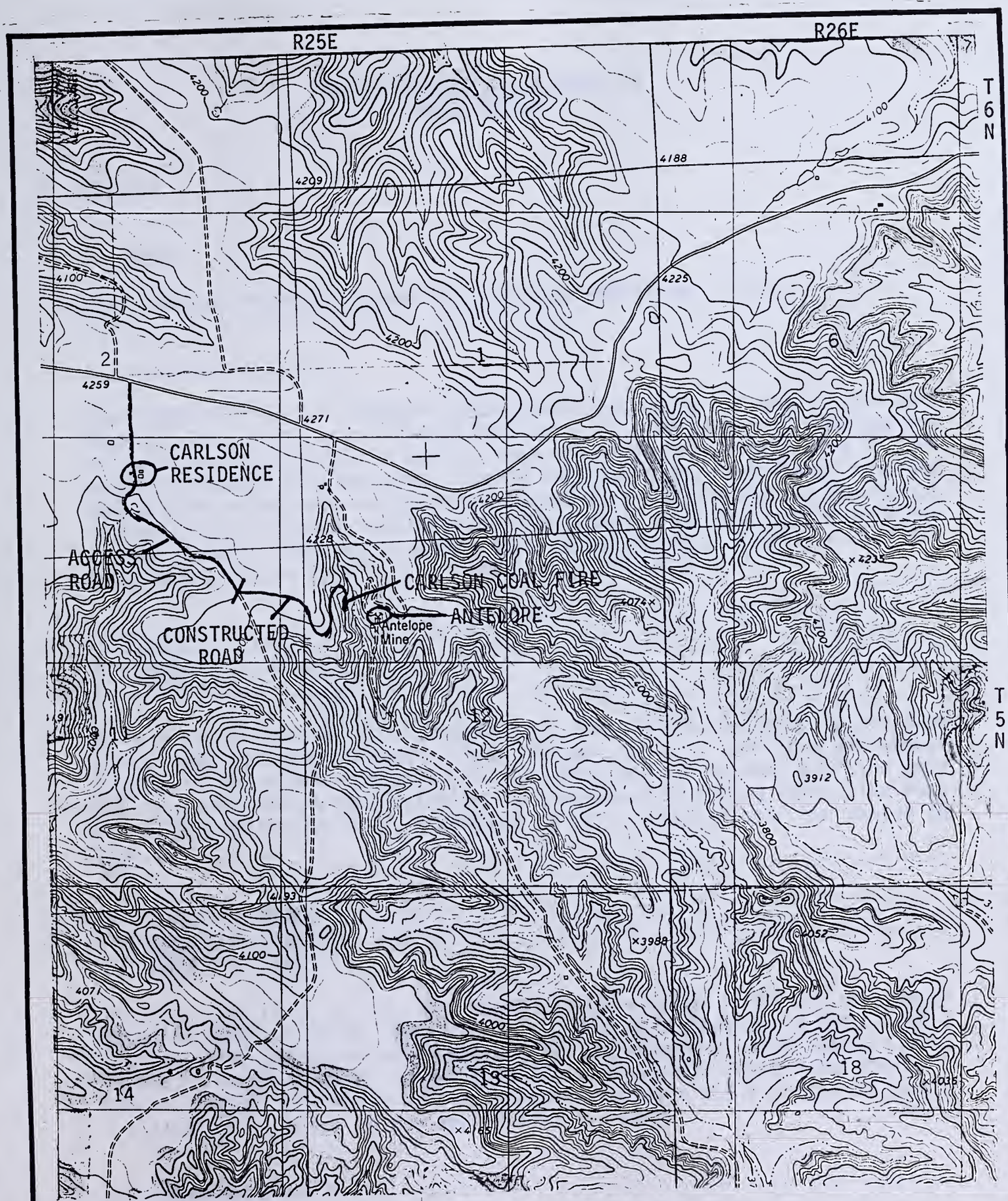
SITE MAP

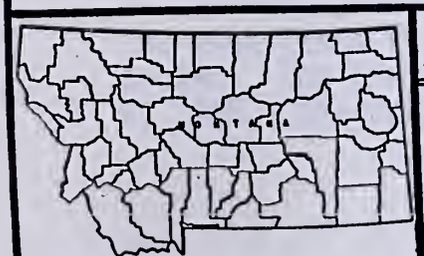
SITE WADE COAL FIRE #2

MUSSELSHELL COUNTY, MT; TOWNSHIP 6N RANGE 28E

SECTION(S) 10 S1/2 NW1/4

MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET CHERRY SPRING





STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

SITE MAP

SITE CARLSON COAL FIRE AND ANTELOPE

MUSSELSHELL COUNTY, MT; TOWNSHIP 5 N RANGE 25 E

SECTION(S) 12 NW 1/4

MAP SCALE: 1"= 2000' U.S.G.S. QUAD SHEET HAY BASIN NE

N

D. History

1. PERRY

This site was mined by Eugene Perry and was abandoned in 1924.

2. KLEIN REVEGETATION

The Klein Mine is an abandoned underground coal mine located in the Bull Mountain Coal Field near Roundup, Montana. The mine opened in 1909 and was in operation until 1956. A town, also named Klein, was established in 1909 a short distance from the mine. Twenty structures and 31 features remained at the mine in 1981 when a historical survey was performed for the Department of State Lands by Historical Research Associates. A map showing the location of the historic features is within that survey report. A total of 573,000 tons were produced from this mine over its life span.

3. JANICH 17 UPPER
4. JANICH 17 LOWER
5. JANICH 18

No history was available for these sites. However, Nick Janich accompanied the project engineer to these sites. He was raised in the area and worked in some of the mines. According to him, the land was so poor that the only way for homesteaders to survive was to supplement by mining coal. The barn his father built near their homestead is still standing near the Janich 18 site.

6. JANICH 20 UPPER
7. JANICH 20 LOWER
8. JANICH 20 FIRE

The only mine lease in this section was for the $SE\frac{1}{4}SE\frac{1}{4}$ which was started on March 6, 1924, by a Mr. Frank Bruder. This site appears to have been a trespass mine and was probably worked only for domestic use by people living in the surrounding area. It was probably developed prior to Frank Bruder's federal lease; and, might have been associated with his attempts to locate a suitable site prior to his application for lease.

9. JANICH 20/29

The mine lease for this site was started on March 6, 1924, by a Mr. Frank Bruder. The mine appears to have been worked periodically until February 8, 1930. Approximately 1093 tons of coal were mined.

D. History (Cont.)

10. JANICH 29

No history was available for this site. However, during the initial site visit, it was obvious that Nick Janich was very familiar with the site and its history.

11. SHEPHERD

The Shepherd Mine appears to have been opened as early as 1880 by the Northern Pacific Railroad Co. The mine was soon abandoned because of its long distance from the railroad.

12. JANICH 20 NEW ADIT

The only mine lease in this section was for the $SE\frac{1}{4}SE\frac{1}{4}$ which was started on March 6, 1924, by a Mr. Frank Bruder. This site appears to have been a trespass mine and was probably worked only for domestic use by people living in the surrounding area. It was probably developed prior to Frank Bruder's federal lease; and, might have been associated with his attempts to locate a suitable site prior to his application for lease.

13. BROWN/CHARTER COAL FIRE
14. BROWN RANCH INCLINE

As early as June 1914, it was reported that considerable prospecting work was being done on the Mammoth bed at the head of Fattig Creek. The Brown Ranch Incline opening is probably associated with that work. The Brown/Charter Coal Fire was an outcrop fire on the other side of the ravine from the Brown Ranch Incline.

15. WADE #2 COAL FIRE

This was an outcrop fire near the Wade Coal Mine.

16. CARLSON COAL FIRE

This was an outcrop fire located west and across the drainage from the abandoned Antelope Mine.

D. History (Cont.)

17. ANTELOPE MAINTENANCE

The Antelope mine was started by Ivan Buford in 1922. Buford mined approximately 1500 tons. The mine then passed to H. Henderson and R.C Farnes who produced only 142 tons in 1923. Ernest Poe took over the government coal lease in June 1924 and his brother Orville began managing the mine. Soon a 420 foot incline was put in from the mine to the top of the hill where a bin and screens were installed. By 1931, Poe constructed about 3 miles of road to put his mine within 8½ miles of the Billings-Roundup highway. Poe then established a coal yard in Billings and built up a fair trade selling lump coal for $3.25, egg coal for $2.75, and nut coal for $2.00 per ton.

Until 1937, the coal was mined by hand methods. It was first undercut with picks then blasted down with the aid of black powder. A thin shale parting was removed from the 7 foot thick coal seam during these operations. The coal was loaded by forks and pulled by horses to the tipple over steel rail. In 1937, a Jeffrey breast-type cutting machine was placed in service at the mine. It was powered by a generator located near the mine portal.

In 1945, Ernest transferred his lease to Orville who had managed the property for many years. Between 1945 and 1951, various operators ran the operation under purchase agreements. These operators included H.M. Timmons, E.F. Eliason and finally Edward and Mike Knez. In 1951, the mine was finally sold to the Knez brothers and Joe Birrer. Birrer trucked the mine output to the Northside Lumber and Coal Yard in Billings, which he owned and operated.

The mine ended production in 1963 after producing around 24,000 tons of which all but 2000 tons was produced prior to 1951. The mine openings included: (1) a main portal; (2) an 80 foot deep shaft; (3) an escapeway; and, (4) a small air shaft. The mine was not developed systematically but was typical of the small room and pillar mines of that time. Generally rooms were driven 25 feet to 30 feet wide.

II. DESCRIPTION OF RECLAMATION PROJECT

A. Site Hazards and Problems

1. PERRY

The Perry site contained a number of sink hole subsidence features which resulted from underground mining beneath shallow cover. There were three subsidence holes which were up to 7 feet deep. Several of these features led to subsurface openings which extended up to 22 feet in length. These underground openings were eliminated and the depressions were backfilled.

In addition to the subsidence features, other problems at the site included: (1) a small coal slack pile; (2) a 35-foot long adit trench with steep side slopes; and, (3) debris. The slack pile was used as backfill and, thus, was eliminated. The steep slopes on the 35-foot long adit trench were regraded. The contractor was required to dispose of all debris on the site. The site required grading and revegetation.

2. KLEIN REVEGETATION

The objective at the Klein site was to address problems which had either persisted or developed after the completion of a previous AMR project. Vegetation had failed to properly establish on a regraded hillside and gullies had developed. The hillside required backfilling, regrading and revegetation. Four check ditches were excavated along the contour as erosion control features.

Headcutting had developed in a reclaimed segment of Deadman Coulee. Excavation and recontouring of the channel was required to establish a smooth profile to resist further erosion. Flat areas along the stream channel required neutralization prior to revegetation.

At the site there was a short concrete-lined underground room that had been used as powder magazine for the mining operation. This was considered to be a hazard due to deterioration of the roof. Because the structure was considered to have historical significance by SHPO, a grate closure was installed at the entrance.

3. JANICH 17 UPPER

There were four coal slack areas, an open adit and scattered debris at this site. Coal slack was borrowed from the pile nearest the adit and used to backfill the entrance to the adit. The outside surface of the plug was faced with rock. All coal slack areas were neutralized and revegetated after limited regrading.

A. Site Hazards and Problems (Cont.)

4. JANICH 17 LOWER

Problems at the Janich 17 Lower site consisted of two open mine adits, four coal slack piles and scattered debris. The entrances to the two adits were backfilled with coal slack. The banks above each of the adits were rebuilt using borrow material. The coal slack areas were neutralized with lime, and all disturbed areas were revegetated.

5. JANICH 18

There was one open adit at the end of a collapsed adit depression, a coal slack pile, and a subsidence depression at the Janich 18 site. Coal slack was used to seal the adit, fill the collapsed adit depression, and backfill the subsidence feature. The site was regraded to blend with the surrounding topography. Coal slack areas were neutralized with lime, and all disturbed areas were revegetated.

6. JANICH 20 UPPER

Problems at the Janich 20 Upper site consisted of one small adit opening, an 8-foot deep mine shaft, two coal slack piles and debris. Borrow material was used to close both mine openings. The coal slack areas were neutralized with lime. Topsoil from a borrow area and salvaged topsoil was used to cover the neutralized and disturbed areas prior to revegetation.

7. JANICH 20 LOWER

A large area covered with coal slack was reclaimed at this site. The site also contained the remains of a loadout structure and other debris which required disposal. The area was neutralized as required, covered with topsoil, and revegetated.

8. JANICH 20 FIRE

At this site a small coal seam outcrop fire was burning along a hillside. Such coal bank fires have the potential of igniting timber or range fires while consuming a natural resource. The burning coal was excavated, extinguished and buried. The coal areas were then neutralized and regraded. All disturbed areas were then revegetated.

A. Site Hazards and Problems (Cont.)

9. JANICH 20/29

Problems at the Janich 20/29 site consisted of two small adit openings, five coal slack areas and debris. Borrow material was used to close both mine openings. The coal slack areas were neutralized with lime. Topsoil from a borrow area and salvaged topsoil was used to cover the disturbed area prior to revegetation.

10. JANICH 29

The Janich 29 site contained one open adit which had been developed at the end of a trench. The opening and depression were backfilled and regraded. A coal slack pile was located below the adit and along a channel. The coal slack was neutralized and buried. Final regrading was designed and constructed to provide a small spring-fed stock watering pond. Finally, the disturbed areas were revegetated.

11. SHEPHERD

At the Shepherd site were two open adits and a number of sink hole subsidence features which resulted from underground mining beneath shallow cover. There were five subsidence holes which were up to 10 feet deep. In most cases these features exhibited greater lateral extent below the surface creating overhanging ledges around these holes. Four of the subsidence holes required backfilling. An excavation was made between one of the adits and a nearby subsidence hole to insure that subsequent subsidence would not continue in that area and to permit complete backfilling of the underground opening between the two holes. The open adits were sealed and backfilled. The contractor disposed of all debris on the site. The disturbed area was graded smooth and revegetated.

12. JANICH 20 NEW ADIT

The Janich 20 New Adit site consisting of a heavily timbered open mine adit, a rock retaining wall, and an area below the retaining wall covered with coal slack. First, the mine timbers were removed and all debris was disposed of. The open adit was backfilled with coal slack and the remaining coal slack was placed near the closed adit and regraded to match the surrounding topography. Coal slack areas were then neutralized. The area was covered with topsoil which either had been salvaged prior to construction or was taken from a borrow area. Finally, the area was fertilized, seeded and mulched.

A. Site Hazards and Problems (Cont.)

13. BROWN CHARTER FIRE

At this site a small coal fire was burning where the coal seam outcropped along a stream bank. These coal bank fires have the potential of igniting timber or range fires while consuming a natural resource. The burning coal was excavated, extinguished and buried. Bank reconstruction, regrading, neutralization, and revegetation were required to finish reclamation at the site.

14. BROWN RANCH INCLINE

A short adit which had been driven into a steep hillside was located at this site. Explosives were used to collapse this adit.

15. WADE #2 COAL FIRE

At this site a small coal fire was burning where the coal seam outcropped in a bank along Cow Gulch. The burning coal was excavated, extinguished and buried. Slope reconstruction, regrading, neutralization, and revegetation were required to finish reclamation at the site.

16. CARLSON COAL FIRE

At this site, the coal seam was burning at two diverging locations where the coal seam outcropped along the side of a hill. These coal bank fires have the potential of igniting timber or range fires while consuming a natural resource. The burning coal was excavated, extinguished and buried. Slope reconstruction, regrading, neutralization, and revegetation were required to reclaim the site. Erosion control blanket was placed to stabilize the revegetated areas on the steep hillside.

17. ANTELOPE MAINTENANCE

The objective at the Antelope site was to address problems which had either persisted or developed after the completion of a 1985 AMR project. Severe erosion at the site had created gullies through a backfill area and had damaged the road which runs adjacent to this site. A culvert was installed in the road and limited site regrading was employed to correct these problems.

B. Project Planning

The work in this project was performed at seventeen project sites. Except for the Perry site, the work occurred within a few miles of the Old Divide Road loop thirty miles north of Billings. The goal of the project was to reclaim several small sites that had been overlooked or otherwise not addressed in earlier bid packages for the area. The major items of work were to backfill or collapse open adits; excavate and extinguish burning coal from coal outcrops; neutralize, and bury coal slack; backfill and regrade subsidence depressions; dispose of debris; revegetate disturbed areas; perform maintenance at previously reclaimed sites; and install fence.

There were eleven sites included in the original bid package. Six more sites were added to the project after the contract was awarded. Care was given to ensure that the costs for the added work were consistent with the prices bid for the original scope of work.

Ben Mundie started as the AMR Bureau representative and has recently been replaced by Stuart Levit. Gary W. Rome, P.E. served as the project engineer, Hank Lowe and Bill Wolff were the construction inspectors for Spectrum Engineering.

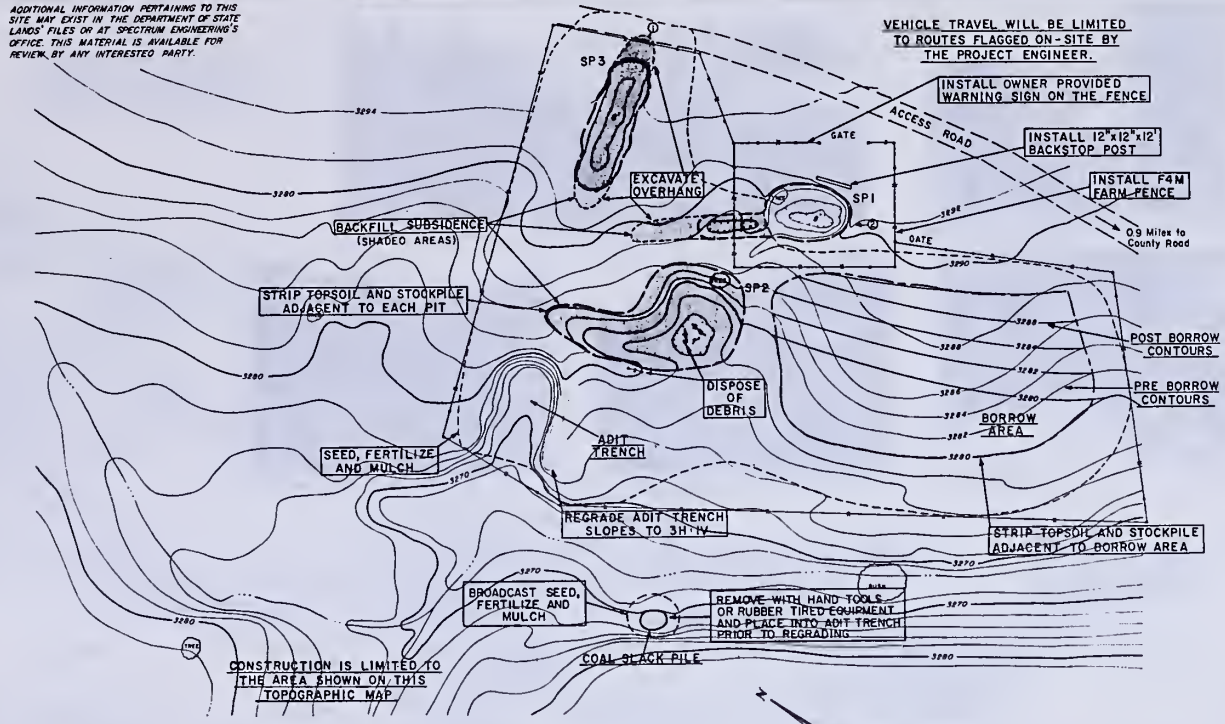
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

① PICTURE 1 SHOWS SUBSIDENCE PIT 3 LOOKING WEST.

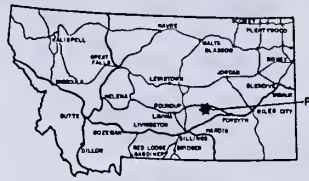
② PICTURE 2 SHOWS THE BOTTOM OF SUBSIDENCE PIT 1.

③ PICTURE 3 IS AN OBLIQUE SHOWING ALL OF THE SUBSIDENCE FEATURES.

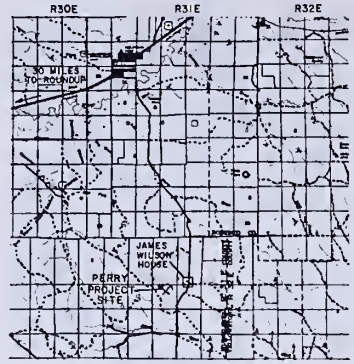
④ PICTURE 4 IS AN AERIAL OF THE PROJECT SITE.



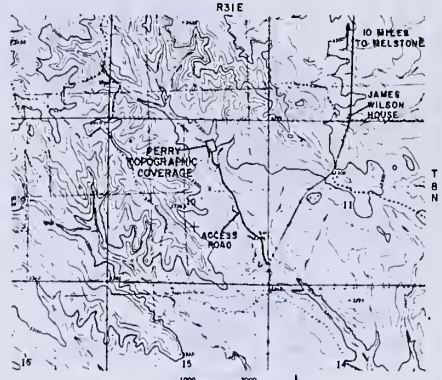
Vertical Datum Based On Interpolation Of USGS 7½ Quadrangles: WEED CREEK WEST Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
SALVAGE TOPSOIL	FROM SUBSIDENCE AREAS AND BORROW AREA	STOCKPILE AND REPLACE	120 LCY
SUBSIDENCE PIT 1 TRENCH	25'L x 8'W x 3' DEEP	BACKFILL WITH MATERIAL FROM BORROW AREA	25 LCY
SUBSIDENCE PIT 2	UP TO 34'W, UP TO 61'L, 4 TO 7' DEEP	BACKFILL WITH MATERIAL FROM BORROW AREA	205 LCY
SUBSIDENCE PIT 3	43.5'L x 13'W x 6' DEEP	BACKFILL WITH MATERIAL FROM BORROW AREA	120 LCY
BORROW AREA	OVERBURDEN BORROW SOURCE TO FILL SUBSIDENCE PITS	EXCAVATION - UP TO 8 FEET DEEP	
ADIT TRENCH	35 FEET LONG	GRADE SLOPES TO 3H:1V	50 LCY
COAL SLACK PILE	8' x 7' x 2' DEEP	PLACE IN ADIT TRENCH	4 LCY
SP 1 TRENCH OVERHANG	22'L x 8'W x 10' DEEP	EXCAVATE OVERHANG	70 LCY
SP 3 OVERHANG	8'L x 10'W x 8' DEEP 8'L x 11'W x 8' DEEP	EXCAVATE OVERHANG EXCAVATE OVERHANG	20 LCY 22 LCY
BACKSTOP POST	12" x 12" x 12'L	INSTALL IN FRONT OF SP #1	1 POST
DEBRIS	BIODEGRADABLE - WOOD NON-BIODEGRADABLE - WIRE	DISPOSE OF DEBRIS DISPOSE OF DEBRIS	1/2 PICKUP LOAD 1 PICKUP LOAD
WATER	SUBSIDENCE PITS HAUL ROADS TOTAL	FOR COMPACTION DUST SUPPRESSION	6500 GALLONS 5000 GALLONS 11500 GALLONS
FARM FENCE	TYPE F-4M SINGLE PANELS DOUBLE PANELS TYPE G-2 GATE	INSTALL AS SHOWN INSTALL 2 AS SHOWN	589 L. FEET 3 EACH 10 EACH 32 L. FEET
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.5 ACRES	SEED APPLICATION (23 LBS PLS/ACRE) 12 LBS PLS	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 47 LBS	MULCH APPLICATION (3000 LBS/ACRE) 1500 LBS

LEGEND

- 3280 — CONTOUR
- COAL SLACK
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- SP3 / 8' — SUBSIDENCE PIT (SP) NUMBER (& DEPTH)
- OPEN ADIT

WORK DESCRIPTION

- SALVAGE AND STOCKPILE TOPSOIL FROM THE SUBSIDENCE AREAS.
- BACKFILL SUBSIDENCE AREAS (SP1 TRENCH, SP2 AND SP3) WITH MATERIAL FROM THE BORROW AREA AND REGRADE THE BACKFILLED AREAS AND BORROW AREA.
- REGRADE ADIT TRENCH SLOPES TO 3H:1V.
- PROVIDE WATER FOR BACKFILL COMPACTION AND HAUL ROAD DUST SUPPRESSION.
- DISPOSE OF DEBRIS (BARB WIRE AND FENCE POSTS).
- INSTALL F4M FARM FENCE AROUND SP1 AND ANCHOR 12" x 12" x 12' BACKSTOP POST INTO THE GROUND IN FRONT OF SP1. THEN INSTALL F4M FARM FENCE AROUND THE RECLAMATION AREA.
- INSTALL WARNING SIGN ON THE FENCE.
- REPLACE THE TOPSOIL AND REVEGETATE THE DISTURBED AREAS INCLUDING THE HAUL ROADS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

LANDOWNER
E½ SECTION 10

JAMES E. WILSON
MELSTONE, MT 59054
PHONE: (406) 358-2478

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

PERRY SITE
SECTION 10, T8N, R31E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: 12-28-87
DRAWN BY: CT
CHECKED BY:
APPROVED BY:

NO.	REVISIONS	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

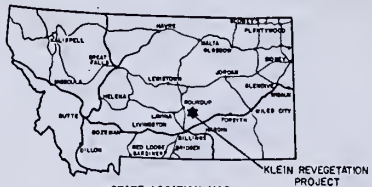
SHEET NO 1 of 1

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

① PICTURE 1 SHOWS THE ERODED HILLSIDE. THE GULLYIND ACTION IS EVIDENT.

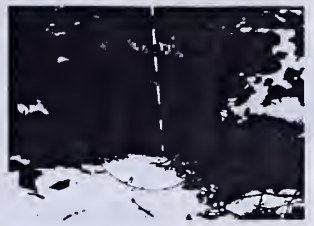
② PICTURE 2 SHOWS THE DULLY ALONG THE EASTERN EDGE OF THE ERODED HILLSIDE.



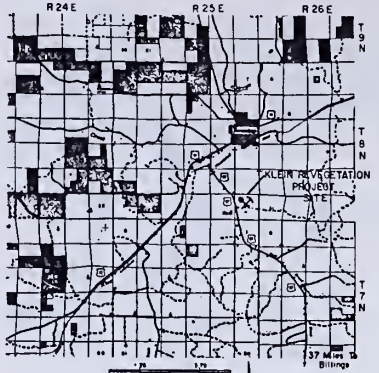
STATE LOCATION MAP

③ PICTURE 3 SHOWS DULLYIND IN THE ROAD.

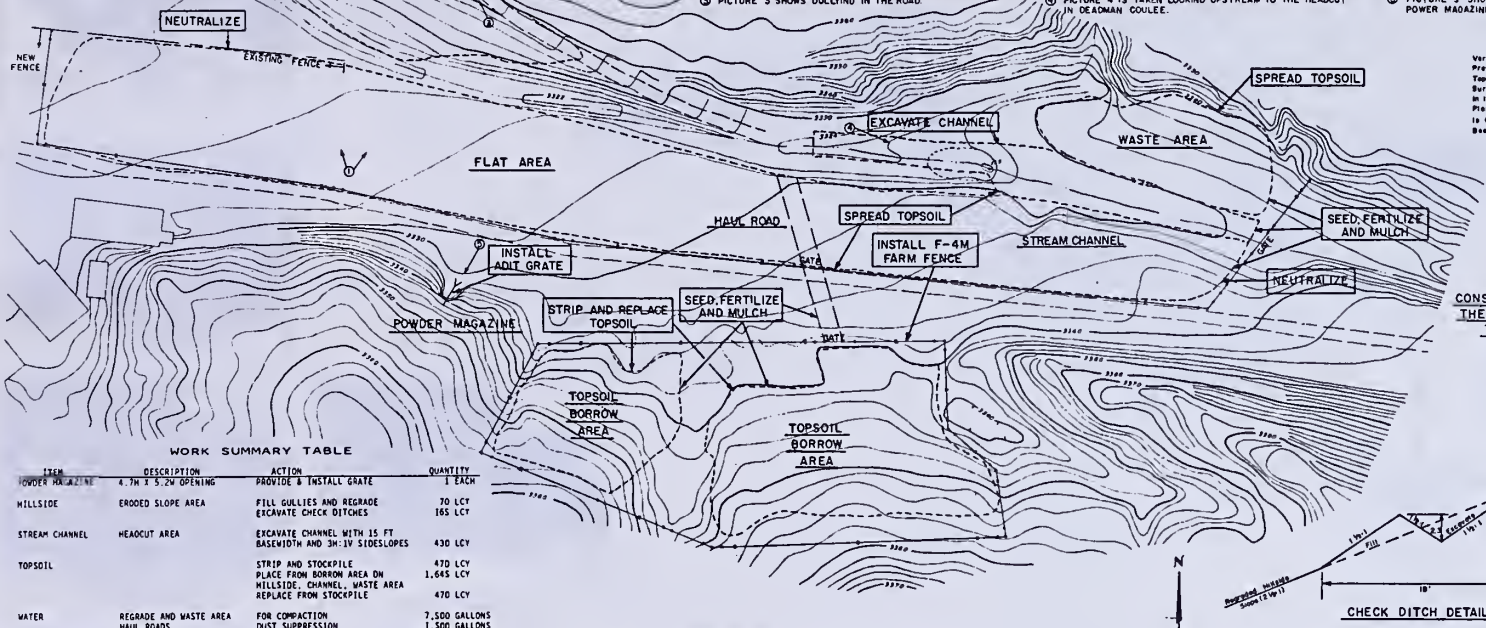
④ PICTURE 4 IS TAKEN LOOKIND UPSTREAM TO THE HEADCUT IN DEADMAN COULEE.



⑤ PICTURE 5 SHOWS THE DOORWAY TO THE ABANDONED POWER MAGAZINE.

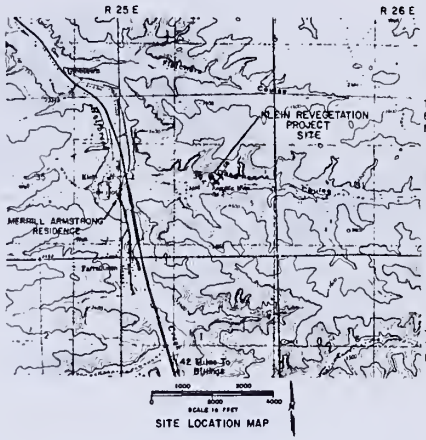


VICINITY ACCESS MAP



Vertical Datum Based On Interpolation Of Previous Aerial Survey Topography Prepared From Previous Aerial Survey And From A Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has not Been Field Checked

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



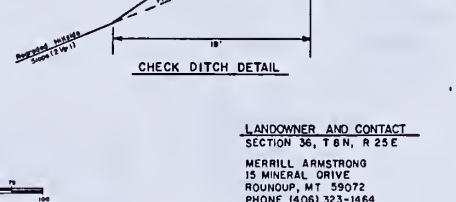
SITE LOCATION MAP

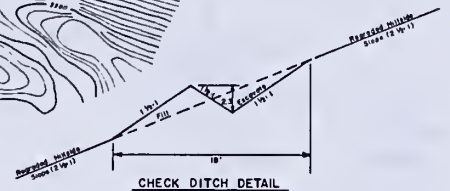
WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
POWDER MAGAZINE	4.7M X 5.2M OPENING	PROVIDE & INSTALL GRATE	1 EACH
HILLSIDE	ERODED SLOPE AREA	FILL GULLIES AND REGRADE	70 LCY
		EXCAVATE CHECK DITCHES	165 LCY
STREAM CHANNEL	HEADCUT AREA	EXCAVATE CHANNEL WITH 15 FT BASEWIDTH AND 3H:1V SIDESLOPES	430 LCY
TOPSOIL		STRIP AND STOCKPILE	470 LCY
		PLACE FROM BORROW AREA ON HILLSIDE, CHANNEL, WASTE AREA	1,645 LCY
		REPLACE FROM STOCKPILE	470 LCY
WATER	REGRADE AND WASTE AREA	FOR COMPACTION	7,500 GALLONS
	HAUL ROADS	DUST SUPPRESSION	1,500 GALLONS
	TOTAL		9,000 GALLONS
NEUTRALIZE - 1.76 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	52,600 LBS
FARM FENCE	TYPE F-4N FARM FENCE	INSTALL AS SHOWN	1,940 LF
SINGLE PANELS			11 EACH
DOUBLE PANELS			11 EACH
TYPE G-2 GATE		INSTALL 3 AS SHOWN	48 LF

REVEGETATION		SEED APPLICATION (23 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
WASTE AREA	- 0.28 ACRE	7 LBS PLS	26 LBS	800 LBS
BORROW AREA	- 0.58 ACRE	14 LBS PLS	54 LBS	1,800 LBS
FLAT AREA	- 1.76 ACRES	41 LBS PLS	163 LBS	5,400 LBS
ROADS, ETC.	- 0.17 ACRE	4 LBS PLS	16 LBS	500 LBS
		(38 LBS PLS/ACRE)		
REGRADE AREA	- 0.78 ACRE*	30 LBS PLS	72 LBS	2,300 LBS
CHANNEL	- 0.23 ACRE*	9 LBS PLS	21 LBS	700 LBS
TOTALS	3.80 ACRE	105 LBS PLS	352 LBS	11,500 LBS

* THESE TWO AREAS TOTALING 1.01 ACRES WILL BE HYDROSEEDED AND HYDROMULCHED. TACKIFIER IN HYDROMULCHING WILL BE APPLIED AT A RATE OF 80 POUNDS PER ACRE.





CHECK DITCH DETAIL

WORK DESCRIPTION

- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ON THE HAUL ROAD.
- PROVIDE AND INSTALL AN ADIT CLOSURE GRATE IN THE POWDER MAGAZINE DOOR.
- SALVAGE AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL THE GULLIES AND REGRADE THE HILLSIDE AREA SMOOTH.
- EXCAVATE CHECK DITCHES AS SHOWN.
- EXCAVATE THE STREAM CHANNEL, PLACING THE MATERIAL IN THE WASTE AREA.
- PLACE TOPSOIL OVER HILLSIDE, CHANNEL, WASTE AREA, FLAT AREA AND BORROW AREA.
- NEUTRALIZE THE FLAT AREA WITH CALCIUM CARBONATE (LIME).
- FERTILIZE, SEED, AND MULCH THE DISTURBED AREAS INCLUDING HAUL ROADS.
- INSTALL F-4N FARM FENCE AS SHOWN.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

LEGEND

—3360— CONTOUR
①→ PICTURE NUMBER AND ORIENTATION
—— DRAINAGE
OPEN ADIT

LANDOWNER AND CONTACT
SECTION 36, T 8 N, R 25 E

MERRILL ARMSTRONG
15 MINERAL ORIVE
ROUNOUP, MT 59072
PHONE (406) 323-1464
(406) 323-1613

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRAISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

KLEIN REVEGETATION SITE

SECTION 36, T 8 N, R 25 E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: 2-27-89
DRAWN BY: RLP
CHECKED BY:
APPROVED BY:

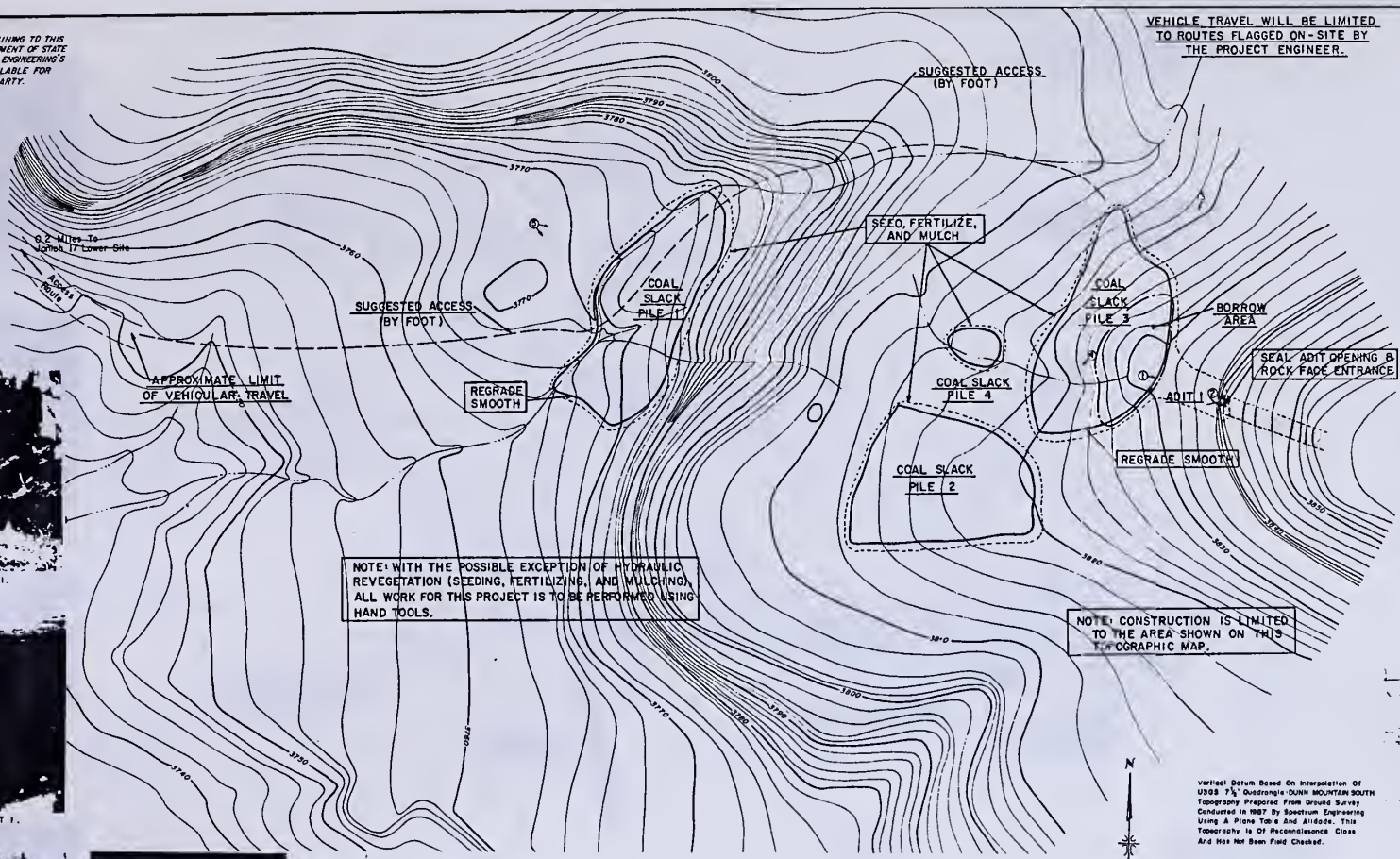
REVISIONS		
NO.	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

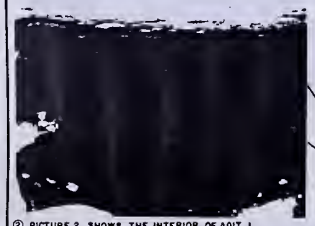
SHEET NO. 1 of 1

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

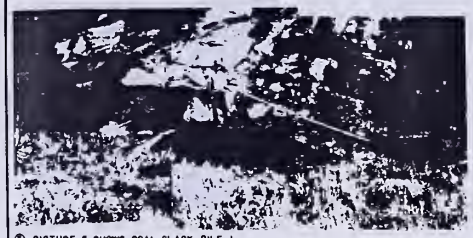

SUGGESTED ACCESS (BY FOOT)
SEED, FERTILIZE, AND MULCH
0.2 Miles To Janich 17 Lower Site
Access Route
SUGGESTED ACCESS (BY FOOT)
COAL SLACK PILE 1
COAL SLACK PILE 3
BORROW AREA
APPROXIMATE LIMIT OF VEHICULAR TRAVEL
REGRADE SMOOTH
SEAL ADIT OPENING & ROCK FACE ENTRANCE
COAL SLACK PILE 4
ADIT 1
REGRADE SMOOTH
COAL SLACK PILE 2
NOTE: WITH THE POSSIBLE EXCEPTION OF HYDRAULIC REVEGETATION (SEEDING, FERTILIZING, AND MULCHING), ALL WORK FOR THIS PROJECT IS TO BE PERFORMED USING HAND TOOLS.
NOTE: CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP.

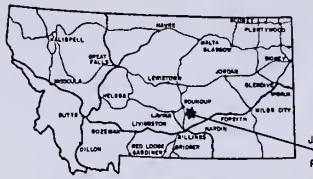
① PICTURE 1 SHOWS THE OPENING OF ADIT 1.


② PICTURE 2 SHOWS THE INTERIOR OF ADIT 1.

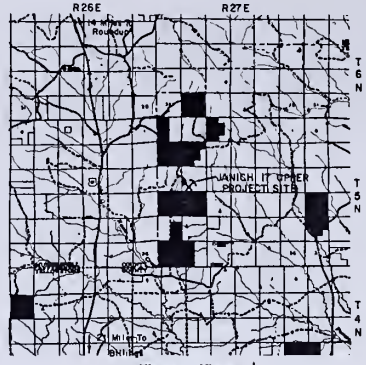
③ PICTURE 3 SHOWS COAL SLACK PILE 3.

④ PICTURE 4 SHOWS COAL SLACK PILE 2.

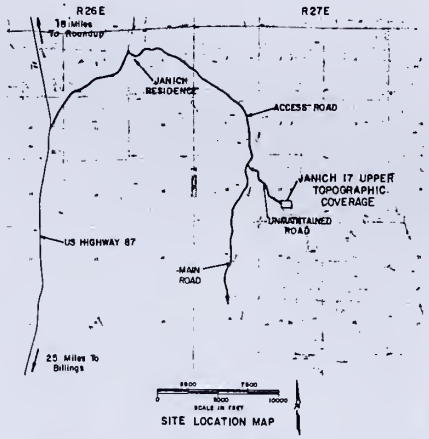

⑤ PICTURE 5 SHOWS COAL SLACK PILE 1.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

LEGEND

—3760— CONTOUR
COAL SLACK PILE
DRAINAGE
① PICTURE NUMBER AND ORIENTATION
UNDERGROUND MINE WORKINGS
OPEN ADIT

WORK DESCRIPTION

- VEHICULAR TRAFFIC IS LIMITED TO THE DESIGNATED AREA DUE TO ADVERSE SITE CONDITIONS.
- DISPOSE OF ALL DEBRIS LITTERING THE SITE.
- BACKFILL ADIT 1 WITH MATERIAL FROM COAL SLACK PILE 3; ROCK FACE THE SEALED ENTRANCE.
- REGRADE COAL SLACK PILES 1 AND 3 SMOOTH PRIOR TO REVEGETATION.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- SEED, FERTILIZE, AND MULCH THE ADIT 1 AREA, COAL SLACK PILES 1 THROUGH 4, AND ALL DISTURBED AREAS.
- FURTHER WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	6 x 4' OPENING	SEAL WITH COAL SLACK ROCK FACE SEALED ENTRANCE	15 LCY 40 SQ FT
DEBRIS	BIODEGRADABLE NON-BIODEGRADABLE	DISPOSE OF DISPOSE OF	1/2 PICKUP LOAD 1 PICKUP LOAD
NEUTRALIZE - 0.17 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	5,100 LBS

REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.22 ACRES	SEED APPLICATION (38 LBS PLS/ACRE) 9 LBS PLS*	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE) 21 LBS	MULCH APPLICATION (3000 LBS/ACRE) 700 LBS

*THIS IS A BROADCAST SEEDING APPLICATION RATE.

LANDOWNER AND CONTACT
SECTION 17, T5N, R27E

NICK AND CLARA JANICH
484 OLD DIVIDE ROAD
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 323-1848

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

JANICH 17 UPPER SITE

SECTION 17, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

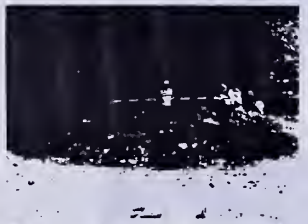
DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:
REVISIONS: NO. | DATE | BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

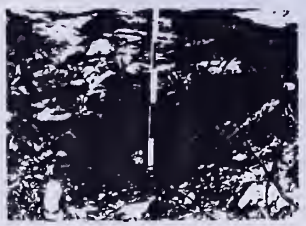
① PICTURE 1 SHOWS COAL SLACK PILE 1 WHICH LAYS ON THE NORTH SIDE OF THE STREAMBED ACROSS FROM ADIT 1.

② PICTURE 2 SHOWS THE OPENING OF ADIT 1.



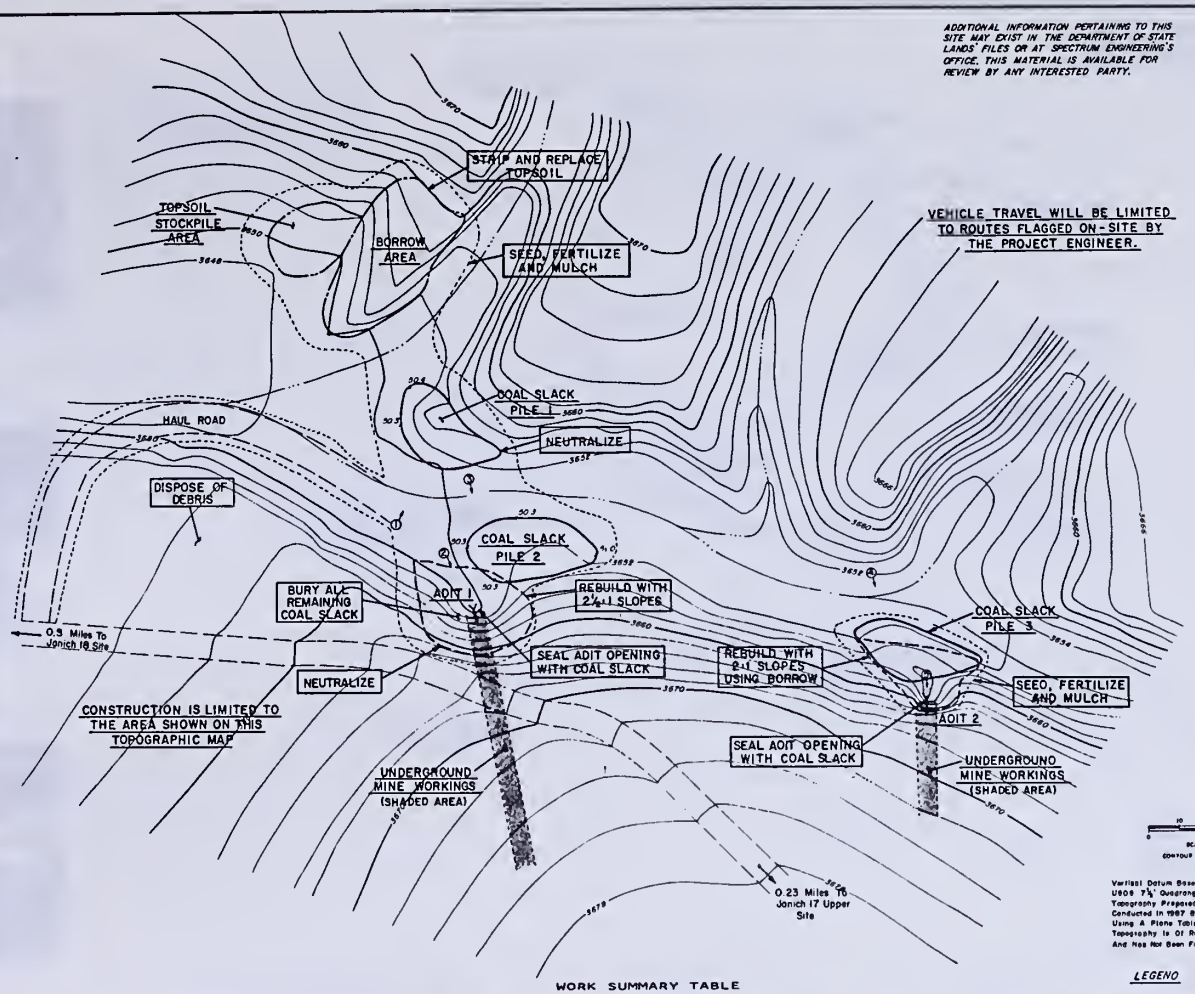
③ PICTURE 3 SHOWS COAL SLACK PILE 2 ADJACENT TO ADIT 1, WHICH CAN BE SEEN AT THE RIGHT.

④ PICTURE 4 SHOWS COAL SLACK PILE 3 IN FRONT OF ADIT 2 AND THE ADIT OPENING IN THE BACK.



⑤ PICTURE 5 SHOWS THE OPENIND AT ADIT 2.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.


STRIP AND REPLACE TOPSOIL
TOPSOIL STOCKPILE AREA
BORROW AREA
SEED, FERTILIZE AND MULCH
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
HAUL ROAD
COAL SLACK PILE 1
NEUTRALIZE
DISPOSE OF DEBRIS
COAL SLACK PILE 2
BURY ALL REMAINING COAL SLACK
ADIT 1
REBUILD WITH 2¼:1 SLOPES
0.9 Miles To Janich 16 Site
SEAL ADIT OPENING WITH COAL SLACK
REBUILD WITH 2:1 SLOPES USING BORROW
COAL SLACK PILE 3
NEUTRALIZE
SEED, FERTILIZE AND MULCH
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP
ADIT 2
SEAL ADIT OPENING WITH COAL SLACK
UNDERGROUND MINE WORKINGS (SHADED AREA)
UNDERGROUND MINE WORKINGS (SHADED AREA)
0.23 Miles To Janich 17 Upper Site
N
SCALE IN FEET
CONTOUR INTERVAL = 5 FT.

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle-DUNN MOUTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	6 x 2 1/2' OPENING	SEAL WITH COAL SLACK	6 LCY
ADIT 2	8 x 2 1/2' OPENING	SEAL WITH COAL SLACK	6 LCY
ADIT 1 AREA		BACKFILL WITH COAL SLACK	50 LCY
		BACKFILL WITH BORROW MATERIAL	20 LCY
ADIT 2 AREA		BACKFILL WITH BORROW MATERIAL	20 LCY
TOPSOIL		STRIP AND STOCKPILE	20 LCY
		PLACE FROM STOCKPILE	20 LCY
DEBRIS	BIODEGRADABLE	DISPOSE OF	1/2 PICKUP LOAD
	NON-BIODEGRADABLE	DISPOSE OF	2 PICKUP LOADS
WATER	SUBSIDENCE & REGRADE AREAS	FOR COMPACTION	1,500 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	2,000 GALLONS
	TOTAL		3,500 GALLONS
NEUTRALIZE - 0.03 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	900 LBS

REVEGETATION		SEED APPLICATION (23 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTAIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
ADIT 1 AREA*	0.24 AC	6.0 LBS PLS	23 LBS	750 LBS
ADIT 2 AREA	0.02 AC	0.5 LBS PLS	2 LBS	100 LBS
TOTALS	0.26 AC	6.5 LBS PLS	25 LBS	850 LBS

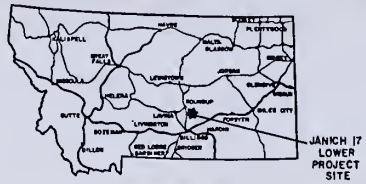
* THIS INCLUDES THE HAUL ROADS.

WORK DESCRIPTION

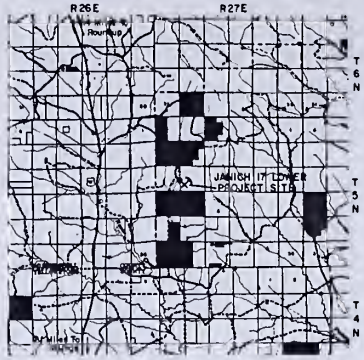
- REMOVE AND DISPOSE OF TREES AS NECESSARY AND ANY DEBRIS.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ON THE HAUL ROAD.
- BACKFILL THE OPENINGS IN THE BACKS OF ADITS 1 AND 2 WITH COAL SLACK.
- SALVAGE AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL THE ADIT 1 AREA ON A 2.5H:1V SLOPE USING THE REMAINING COAL SLACK AND BORROW MATERIAL.
- BACKFILL THE ADIT 2 AREA ON A 2H:1V SLOPE USING BORROW MATERIAL.
- REGRADE THE BORROW AREA SMOOTH.
- PLACE TOPSOIL OVER THE REGRADED ADITS AND THE BORROW AREA.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- SEED, FERTILIZE, AND MULCH THE DISTURBED AREAS INCLUDING HAUL ROADS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

LEGEND

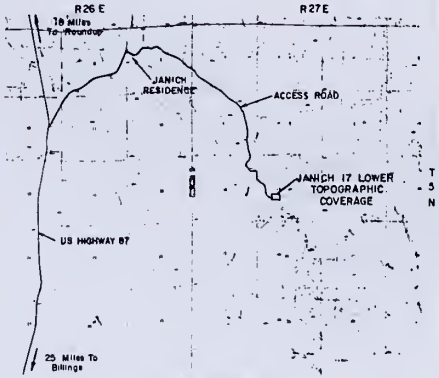
- CONTOUR
- COAL SLACK PILE
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER
ALL OF SECTION 17, T5N, R27E

NICK AND CLARA JANICH
GOLDEN CREEK ROUTE
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 323-1848

NOTICE

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SITE PLAN AND GENERAL LAYOUT

JANICH 17 LOWER SITE

SECTION 17 T5N, R27E
YELLOWSTONE COUNTY, MONTANA

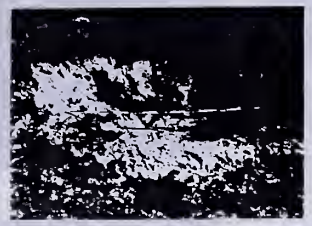
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE:	12-28-87
DRAWN BY:	DLO
CHECKED BY:	
APPROVED BY:	

REVISIONS NO.	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

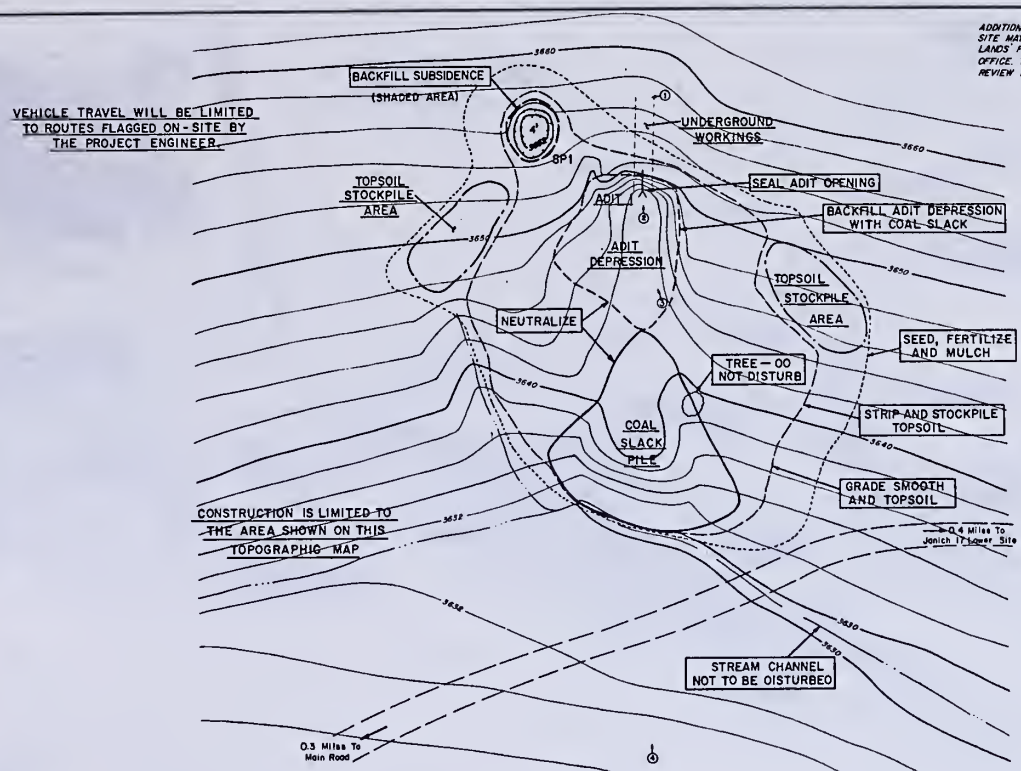


① PICTURE 1 SHOWS SUBSIDENCE PIT 1

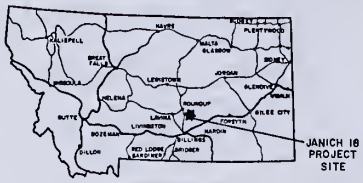
② PICTURE 2 SHOWS THE OPENING AT THE BACK OF ADIT 1.

③ PICTURE 3 IS LOOKING AT THE BACK OF ADIT 1.

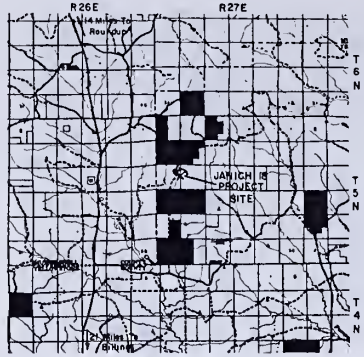
④ PICTURE 4 SHOWS THE COAL SLACK PILE, THE COLLAPSED ADIT AND THE SUBSIDENCE PIT.



ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

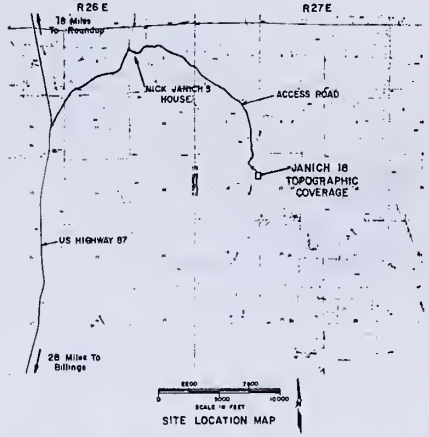


STATE LOCATION MAP



VICINITY ACCESS MAP

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle-DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.



SITE LOCATION MAP

WORK DESCRIPTION

- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ON THE HAUL ROAD.
- SALVAGE AND STOCKPILE TOPSOIL FROM THE ADIT DEPRESSION AND THE BORROW AREA.
- BACKFILL THE OPENING IN THE BACK OF ADIT 1 AND THE SUBSIDENCE PIT WITH COAL SLACK.
- BACKFILL THE ADIT DEPRESSION WITH COAL SLACK AND BORROW MATERIAL.
- REGRADE THE BORROW AREA SMOOTH.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- PLACE TOPSOIL OVER THE REGRADED ADIT AND THE BORROW AREA.
- SEED, FERTILIZE, AND MULCH THE DISTURBED AREAS INCLUDING HAUL ROADS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	4 x 1' OPENING	SEAL WITH COAL SLACK	2 LCY
ADIT 1 AREA		BACKFILL WITH COAL SLACK	130 LCY
		REGRADE	200 LCY
SUBSIDENCE PIT 1	20 x 17 x 4'	BACKFILL	20 LCY
TOPSOIL		STRIP AND STOCKPILE	220 LCY
		PLACE FROM STOCKPILE	220 LCY
WATER	SUBSIDENCE & REGRADE AREAS	FOR COMPACTION	5,300 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	2,000 GALLONS
	TOTAL		7,300 GALLONS
NEUTRALIZE - 0.09 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	2.700 LBS
REVEGETATION OF ENTIRE DISTURBANCE	SEED APPLICATION (23 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
AREA - 0.35 ACRES	9 LBS PLS	33 LBS	1,050 LBS

LEGEND

- 3640 — CONTOUR
- COAL SLACK PILE
- DRAINAGE
- ① — PICTURE NUMBER AND ORIENTATION
- SP1 4' — SUBSIDENCE PIT (SP) NUMBER (& DEPTH)
- OPEN ADIT

LANDOWNER AND CONTACT
E½ SECTION 18, T5N, R27E

NICK AND CLARA JANICH
BOX 341
GOLDEN CREEK ROUTE
ROUNDUP, MT. 59072
PHONE (406) 323-1848

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

JANICH 18 SITE

SECTION 18, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

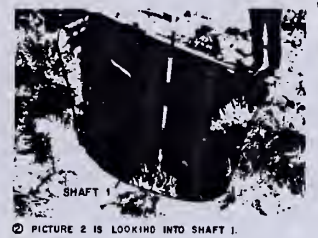
DATE: 2-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

NO.	REVISIONS	DATE	BY

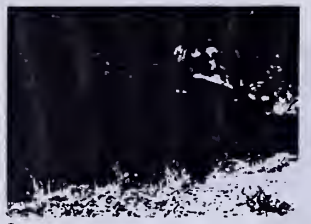
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

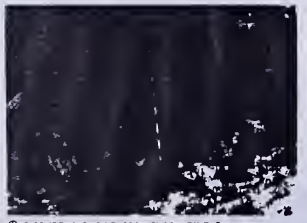
① PICTURE 1 SHOWS THE ADIT 1 OPENING.



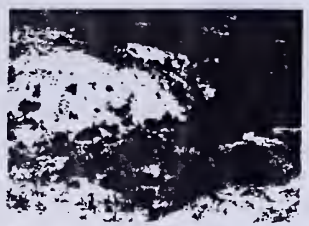
② PICTURE 2 IS LOOKING INTO SHAFT 1.



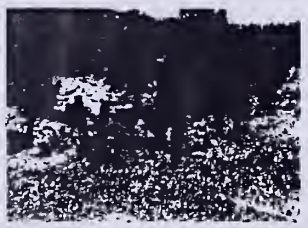
③ PICTURE 3 SHOWS COAL SLACK PILE 1.



④ PICTURE 4 SHOWS COAL SLACK PILE 2.

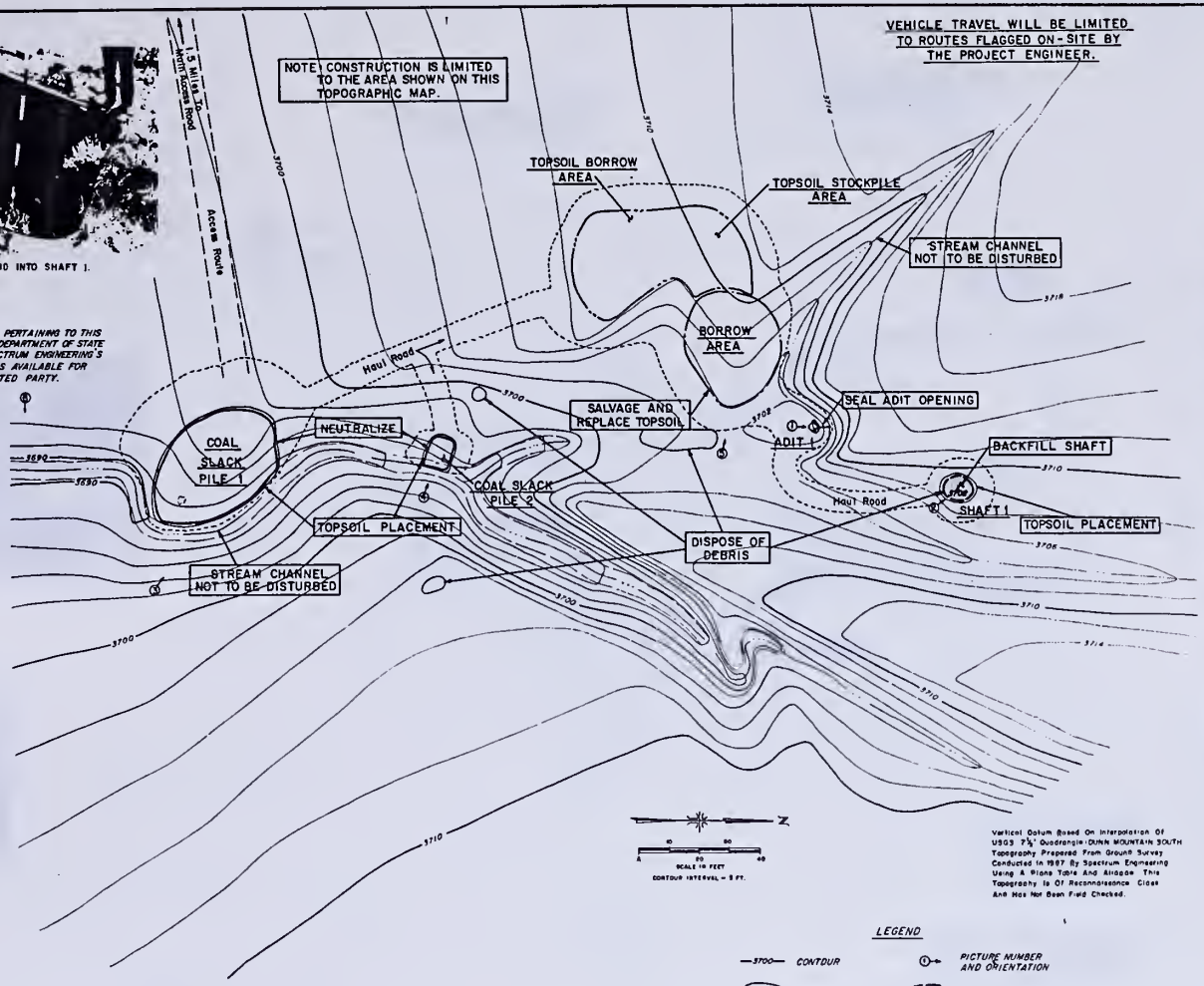


⑤ PICTURE 5 SHOWS THE BORROW AREA.



⑥ PICTURE 6 SHOWS SOME OF THE DEBRIS LOCATED 150'± SOUTH OF COAL SLACK PILE 1.

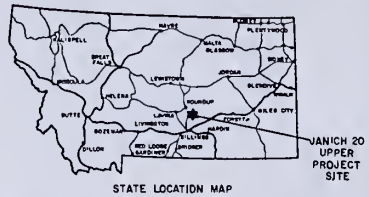
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.



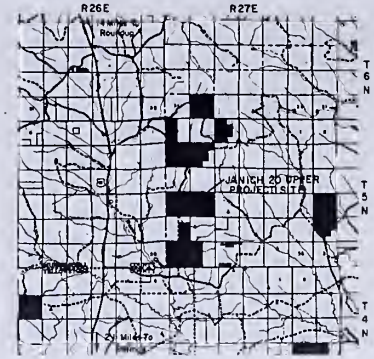
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

LEGEND

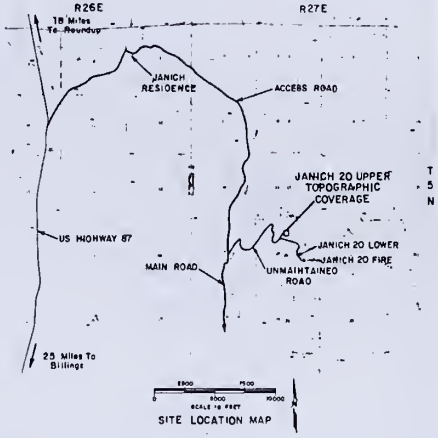
- —3700— CONTOUR
- PICTURE NUMBER AND ORIENTATION
- COAL SLACK PILE
- SHAFT
- DRAINAGE
- OPEN ADIT



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

WORK DESCRIPTION

- DISPOSE OF ALL DEBRIS LITTERING THE SITE INCLUDING THE DEBRIS AREA LOCATED 150'+/- SOUTH OF COAL SLACK PILE 1.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ALSO ON THE HAUL ROADS.
- STRIP AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL SHAFT 1 WITH MATERIAL FROM THE BORROW AREA.
- SEAL THE ADIT 1 OPENING WITH MATERIAL FROM THE BORROW AREA
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- PLACE TOPSOIL FROM THE TOPSOIL STOCKPILE AND FROM THE TOPSOIL BORROW AREA TO COVER SHAFT 1, ADIT 1, THE BORROW AREA, AND COAL SLACK PILES 1 AND 2.
- SEED, FERTILIZE, AND, MULCH ALL DISTURBED AREAS INCLUDING HAUL ROADS. THE ACCESS ROUTE AND THE ROAD(S) TO THE DEBRIS AREA SOUTH OF COAL SLACK PILE 1 WILL NOT BE REVEGETATED.
- FURTHER WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	1 x 2' OPENING	SEAL	1 LCY
SHAFT 1	9'DIAM x 8' DEEP	BACKFILL	25 LCY
DEBRIS	BIODEGRADABLE	DISPOSE OF	2 PICKUP LOADS
	NON-BIODEGRADABLE	DISPOSE OF	1/2 PICKUP LOAD
TOPSOIL		STRIP AND STOCKPILE	20 LCY
		PLACE FROM STOCKPILE AND TOPSOIL BORROW AREA	75 LCY
WATER	RECLAIMED AREAS	FOR COMPACTION	400 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	2,000 GALLONS
	TOTAL		2,400 GALLONS
NEUTRALIZE - 0.03 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	900 LBS

REVEGETATION	SEED APPLICATION (21 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
RECLAIMED AREA 1 0.19 AC	4 LBS PLS	18 LBS	600 LBS
HAUL ROADS 0.03 AC	1 LBS PLS	3 LBS	100 LBS
TOTALS 0.22 AC	5 LBS PLS	21 LBS	700 LBS

LANDOWNER AND CONTACT
SECTION 20, T5N, R27E

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E. MAIN
BILLINGS, MT. 59105
PHONE (406) 657-6262

ACCESS LANDOWNER

NICK AND CLARA JANICH
484 OLD OIVIDE ROAD
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 323-1848

NOTICE

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SITE PLAN AND GENERAL LAYOUT

JANICH 20 UPPER SITE

SECTION 20, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

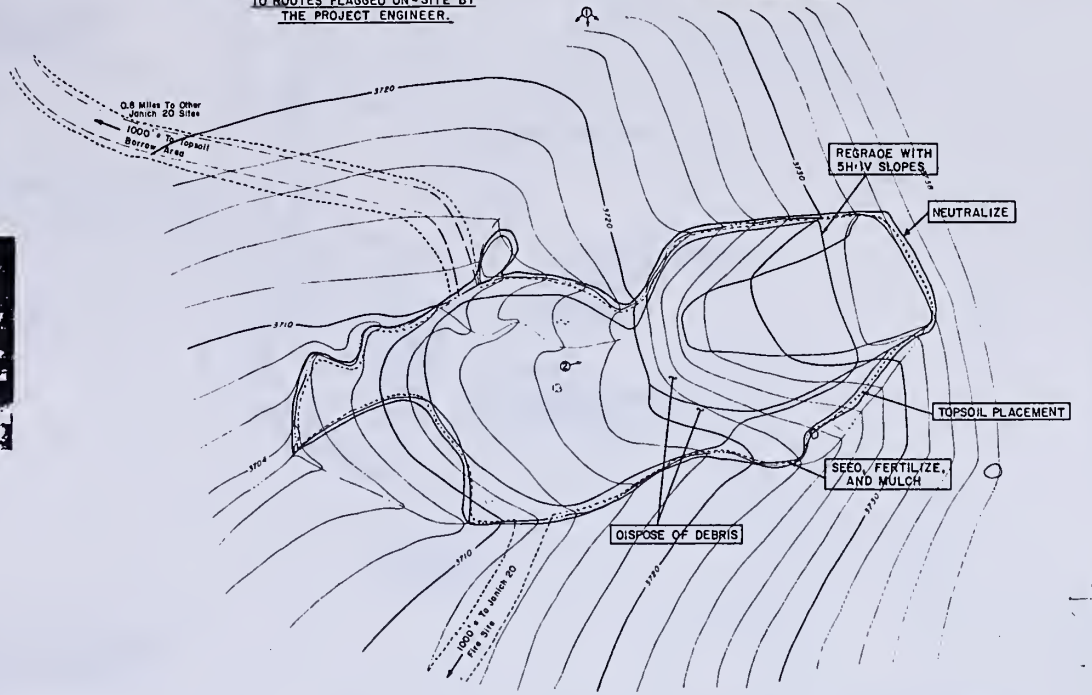
NO.	REVISIONS DATE	BY

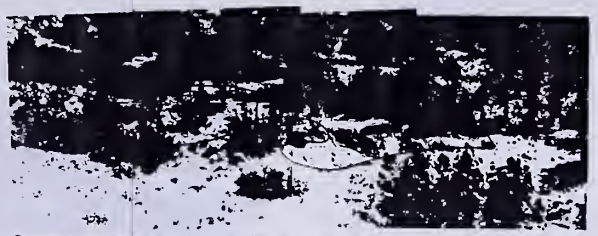
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 9th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

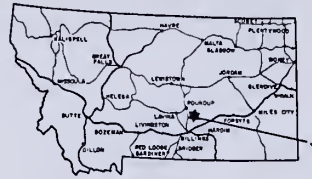
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



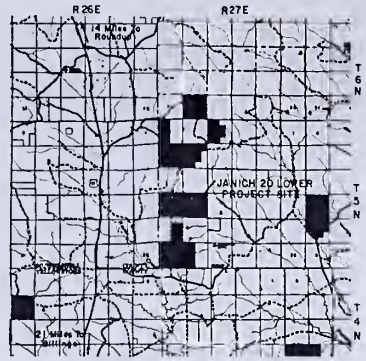


① PICTURE 1 SHOWS THE STRUCTURE REMAINS (DEBRIS) AND THE COAL SLACK AREA DOWNHILL THEREFROM.

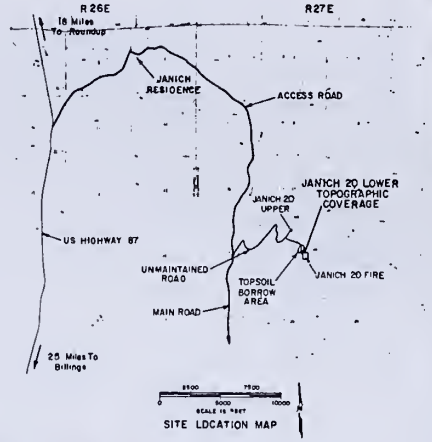
② PICTURE 2 SHOWS THE DEBRIS AT THE END OF THE LARGE COAL SLACK DUMP.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle-DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

WORK DESCRIPTION

- REMOVE AND DISPOSE OF DEBRIS.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREAS AND ON THE HAUL ROAD.
- REGRADE THE COAL SLACK PILE TO 5H:1V SLOPES.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- SALVAGE AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- PLACE TOPSOIL FROM THE BORROW AREA OVER THE REGRADED COAL SLACK AREA.
- REGRADE THE BORROW AREA SMOOTH AND REPLACE TOPSOIL FROM THE STOCKPILE.
- REVEGETATE THE DISTURBED AREAS INCLUDING HAUL ROADS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
COAL SLACK PILE		REGRADE	215 LCY
TOPSOIL		STRIP AND STOCKPILE PLACE FROM STOCKPILE AND TOPSOIL BORROW AREA	80 LCY 310 LCY
DEBRIS	BIODEGRADABLE NON-BIODEGRADABLE	DISPOSE OF DISPOSE OF	20 PICKUP LOADS 2 PICKUP LOADS
WATER	RECLAIMED AREAS CONSTRUCTION AREA AND HAUL ROADS TOTAL	FOR COMPACTION DUST SUPPRESSION	3,300 GALLONS 2,000 GALLONS 5,300 GALLONS
NEUTRALIZE - 0.28 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/8" SLICE)	8,400 LBS

REVEGETATION	SEED APPLICATION (21 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
TOPSOIL BORROW AREA 0.18 AC	4 LBS PLS	15 LBS	500 LBS
TOPSOILED COAL SLACK 0.29 AC	6 LBS PLS	27 LBS	900 LBS
HAUL ROADS 0.25 AC	6 LBS PLS	23 LBS	800 LBS
TOTALS 0.70 AC	18 LBS PLS	65 LBS	2,200 LBS

LEGEND

—3720— CONTOUR
COAL SLACK PILE
DRAINAGE
① PICTURE NUMBER AND ORIENTATION
TREE LOCATIONS

LANDOWNER AND CONTACT
SECTION 20, T5N, R27E

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
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810 E. MAIN
BILLINGS, MT. 59105
PHONE (406) 657-6262

ACCESS LANDOWNER

NICK AND CLARA JANICH
484 OLD DIVIDE ROAD
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 525-1648

NOTICE

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SITE PLAN AND GENERAL LAYOUT

JANICH 20 LOWER SITE

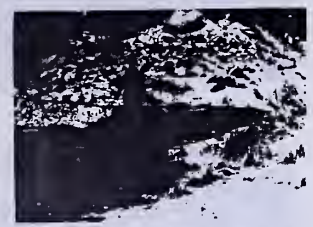
SECTION 20, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

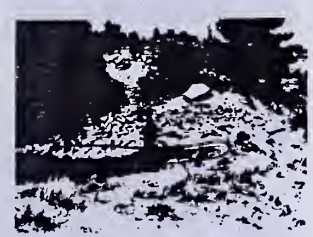
DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:
REVISIONS: NO. | DATE | BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

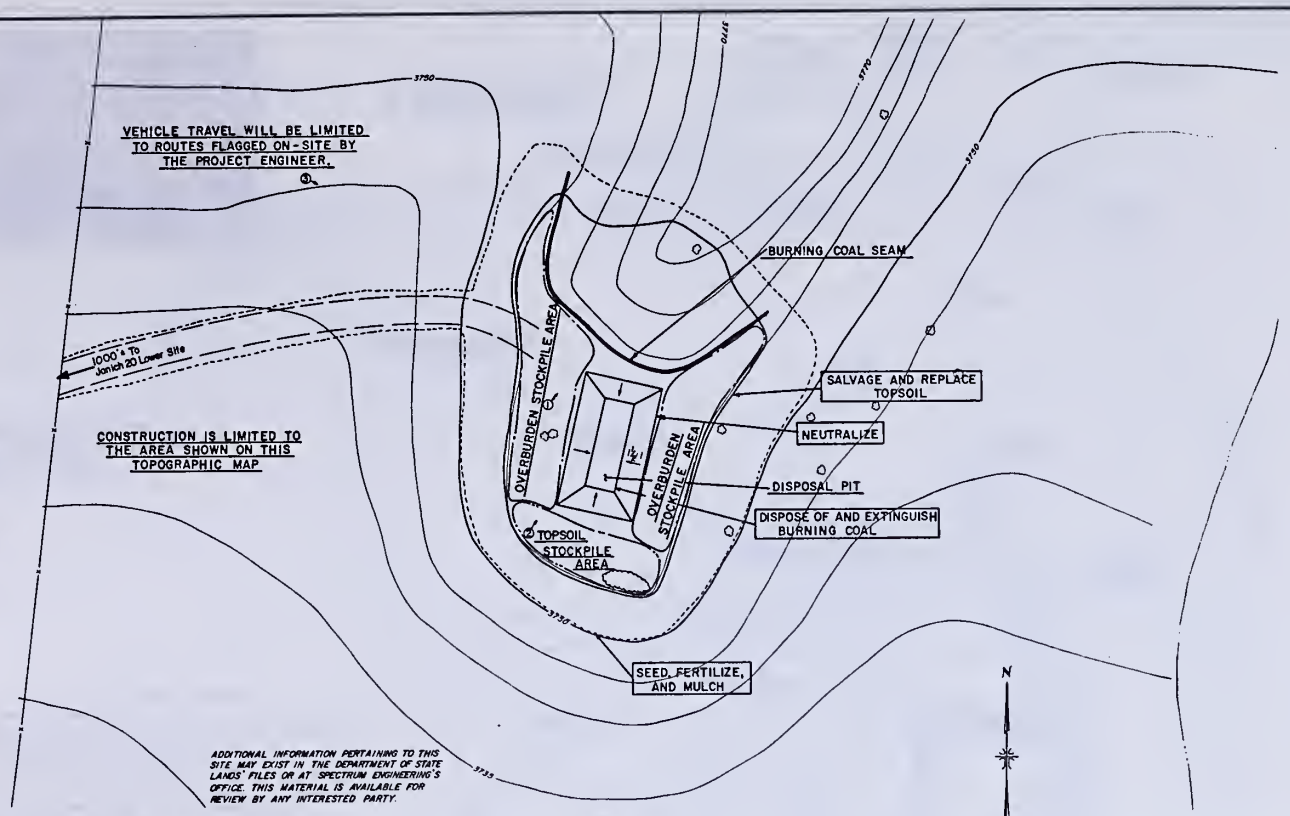


① PICTURE 1 SHOWS THE OUTCROP FIRE AREA AT THE NOSE OF THE RIDGE.



② PICTURE 2 SHOWS THE OUTCROP FIRE AREA AND THE RIDGE RISING BEHIND.

③ PICTURE 3 SHOWS THE RIDGE PROFILE AND THE RELATIVE LOCATION OF THE OUTCROP FIRE.


VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
1000'± To Janich 20 Lower Site
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP
BURNING COAL SEAM
OVERBURDEN STOCKPILE AREA
OVERBURDEN STOCKPILE AREA
SALVAGE AND REPLACE TOPSOIL
NEUTRALIZE
DISPOSAL PIT
DISPOSE OF AND EXTINGUISH BURNING COAL
TOPSOIL STOCKPILE AREA
SEED, FERTILIZE, AND MULCH
3750
3770
3730

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

WORK DESCRIPTION

- REMOVE AND DISPOSE OF TREES ALONG THE ACCESS ROUTE AND IN THE CONSTRUCTION AREA, AS NECESSARY.
- PROVIDE WATER FOR COMPACTION, FOR DUST SUPPRESSION IN THE CONSTRUCTION AREAS AND ON THE ACCESS ROAD, AND FOR EXTINGUISHING BURNING COAL.
- SALVAGE AND STOCKPILE TOPSOIL FROM THE ENTIRE CONSTRUCTION AREA.
- PREPARE A DISPOSAL PIT FOR THE BURNING COAL.
- PLACE OVERBURDEN IN THE OVERBURDEN STORAGE AREAS.
- PLACE BURNING COAL IN THE DISPOSAL PIT AND EXTINGUISH IT.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- REGRADE THE AREA BACK TO ORIGINAL CONTOURS.
- PLACE TOPSOIL FROM THE STOCKPILE OVER THE AREA.
- REVEGETATE THE DISTURBED AREAS INCLUDING HAUL ROADS.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

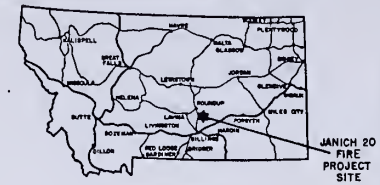
ITEM	DESCRIPTION	ACTION	QUANTITY
COAL DISPOSAL PIT		EXCAVATE AND STOCKPILE	135 LCY
OVERBURDEN		STRIP FROM ABOVE COAL SEAM AND STOCKPILE	330 LCY
BURNING COAL		PLACE IN DISPOSAL PIT AND EXTINGUISH	135 LCY
OVERBURDEN AND EXCAVATED PIT MATERIAL		PLACE FROM STOCKPILES AND REGRADE TO ORIGINAL CONTOURS	465 LCY
TOPSOIL		STRIP AND STOCKPILE PLACE FROM STOCKPILE	90 LCY 90 LCY
WATER	BURNING COAL* RECLAIMED AREAS CONSTRUCTION AREA AND HAUL ROADS TOTAL	EXTINGUISH FOR COMPACTION DUST SUPPRESSION	4,200 GALLONS 6,300 GALLONS 5,000 GALLONS 15,500 GALLONS
NEUTRALIZE - 0.03 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	900 LBS

REVEGETATION		SEED APPLICATION (21 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
RECLAIMED AREAS	0.32 AC	7 LBS PLS	30 LBS	1,000 LBS
HAUL ROADS	0.23 AC	5 LBS PLS	22 LBS	700 LBS
TOTALS	0.55 AC	12 LBS PLS	52 LBS	1,700 LBS

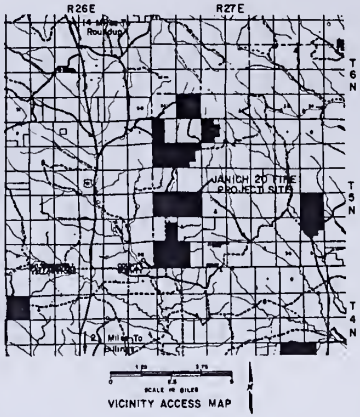
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LEGEND

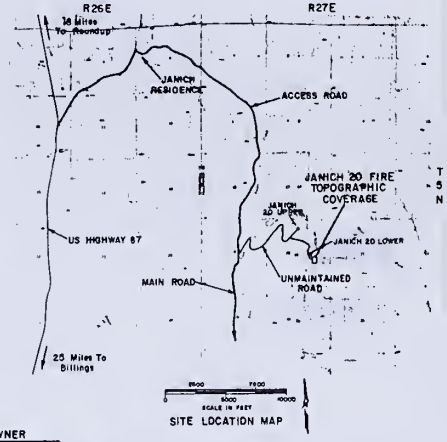
- —3750— CONTOUR
- ① PICTURE NUMBER AND ORIENTATION
- COAL SEAM
- TREES
- DRAINAGE



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT
SECTION 20, T5N, R27E

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E. MAIN
BILLINGS, MT. 59105
PHONE (406) 657-6262

ACCESS LANDOWNER

NICK AND CLARA JANICH
484 OLD DIVIDE ROAD
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 323-1848

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SITE PLAN AND GENERAL LAYOUT

JANICH 20 FIRE SITE

SECTION 20, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

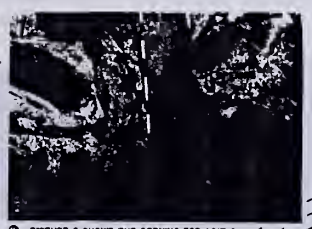
DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

NO.	REVISIONS	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

① PICTURE 1 SHOWS THE OPENING FOR ADIT 1.



② PICTURE 2 SHOWS THE OPENING FOR ADIT 2.

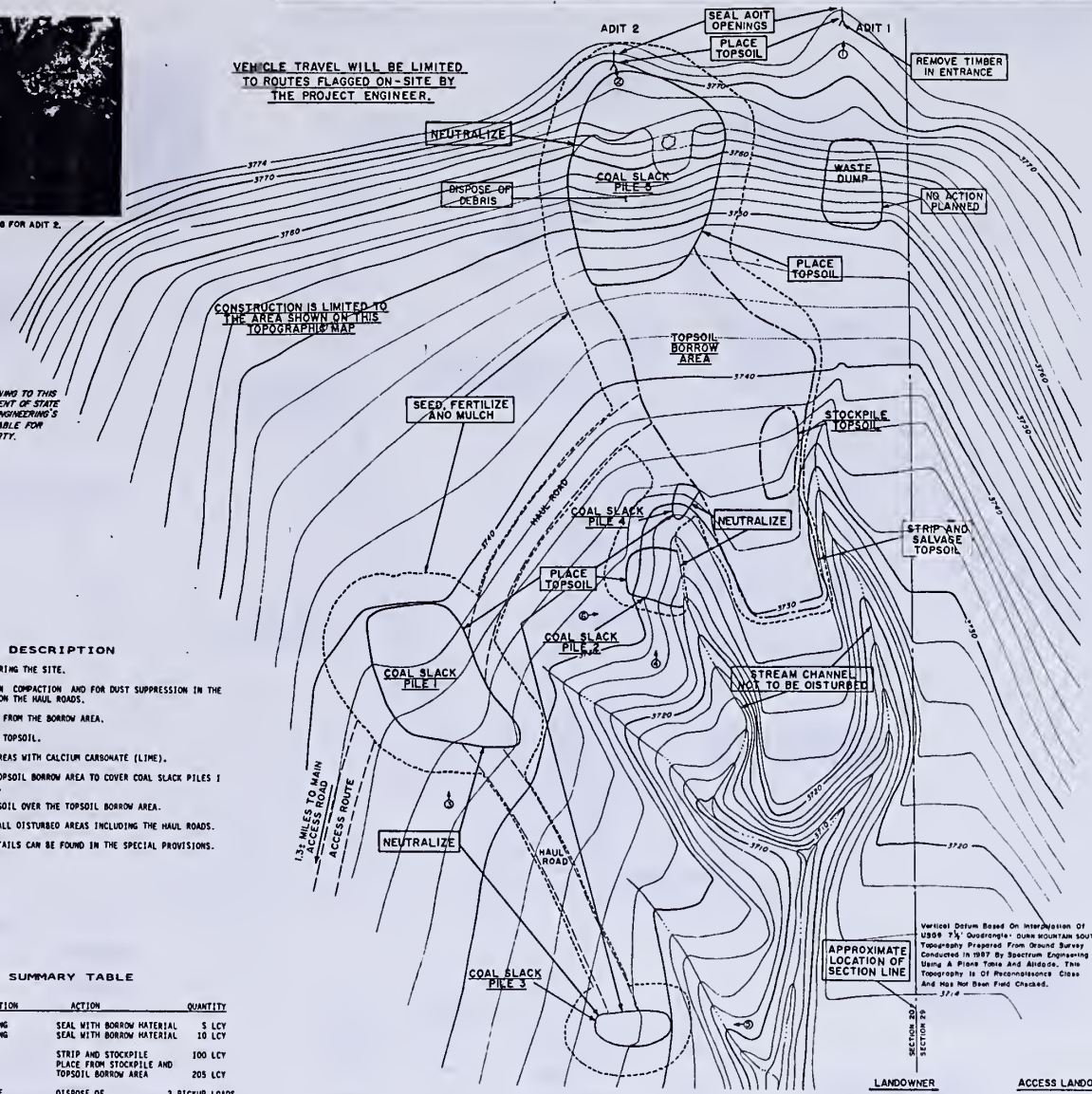
③ PICTURE 3 SHOWS COAL SLACK PILE 1.

④ PICTURE 4 SHOWS COAL SLACK PILE 2. COAL SLACK PILE 3 AND SITE DEBRIS CAN BE SEEN IN THE BACKGROUND AT THE TOP OF THE PICTURE.

⑤ PICTURE 5 SHOWS COAL SLACK PILE 3.

⑥ PICTURE 6 SHOWS THE BORROW AREA.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.



Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

SCALE IN FEET
CONTOUR INTERVAL - 2 FT

WORK DESCRIPTION

- DISPOSE OF ALL DEBRIS LITTERING THE SITE.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ALSO ON THE HAUL ROADS.
- STRIP AND STOCKPILE TOPSOIL FROM THE BORROW AREA.
- BACKFILL ADITS 1 AND 2 WITH TOPSOIL.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- PLACE TOPSOIL FROM THE TOPSOIL BORROW AREA TO COVER COAL SLACK PILES 1 THROUGH 5 AND ADITS 1 AND 2.
- RESPREAD THE STOCKPILED TOPSOIL OVER THE TOPSOIL BORROW AREA.
- SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS INCLUDING THE HAUL ROADS.
- FURTHER WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	4 x 2' OPENING	SEAL WITH BORROW MATERIAL	5 LCY
ADIT 2	5 x 5' OPENING	SEAL WITH BORROW MATERIAL	10 LCY
TOPSOIL		STRIP AND STOCKPILE	100 LCY
		PLACE FROM STOCKPILE AND TOPSOIL BORROW AREA	205 LCY
DEBRIS	BIODEGRADABLE	DISPOSE OF	3 PICKUP LOADS
WATER	SUBSIDENCE & REGRADE AREAS	FOR COMPACTION	300 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	2,000 GALLONS
	TOTAL		2,300 GALLONS
NEUTRALIZE - 0.17 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	5,100 LBS

REVEGETATION	SEED APPLICATION (21 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
RECLAIMED AREAS	0.41 AC	9 LBS PLS	38 LBS	1,250 LBS
HAUL ROADS	0.04 AC	1 LBS PLS	4 LBS	150 LBS
TOTALS	0.45 AC	10 LBS PLS	42 LBS	1,400 LBS

LEGEND

- —3740— CONTOUR
- COAL SLACK PILE
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- WASTE DUMP
- OPEN ADIT

LANDOWNER

SECTION 20, T5N, R27E

LLOYD FUSSELMAN
BUREAU OF LAND MANAGEMENT
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810 E. MAIN
BILLINGS, MT 59105
(406) 657-6262

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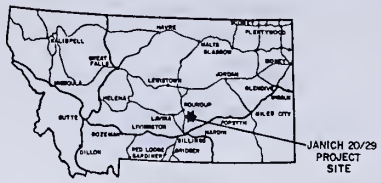
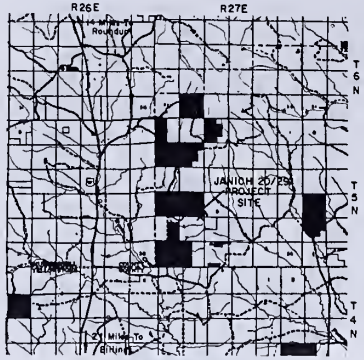
PHONE: (406) 323-1648

NOTICE

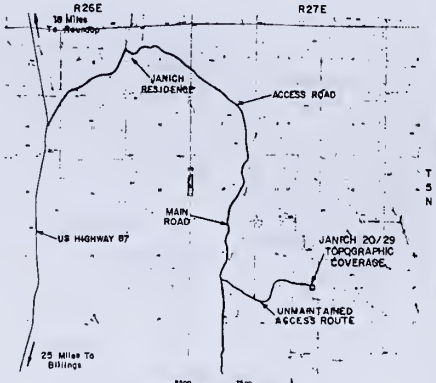
AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

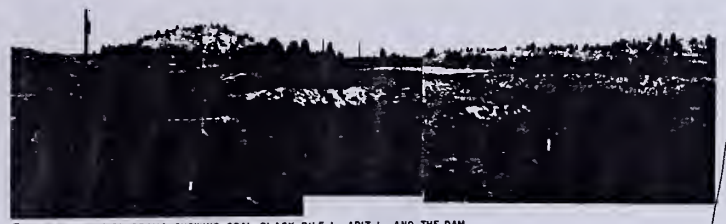
JANICH 20/29 SITE
SECTION 20, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

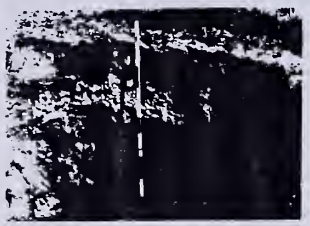
DATE: 12-28-87
DRAWN BY: LNR
CHECKED BY:
APPROVED BY:
REVISIONS: NO. | DATE | BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 9th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1



① PICTURE 1 IS A PANORAMA SHOWING COAL SLACK PILE 1, ADIT 1, AND THE DAM.

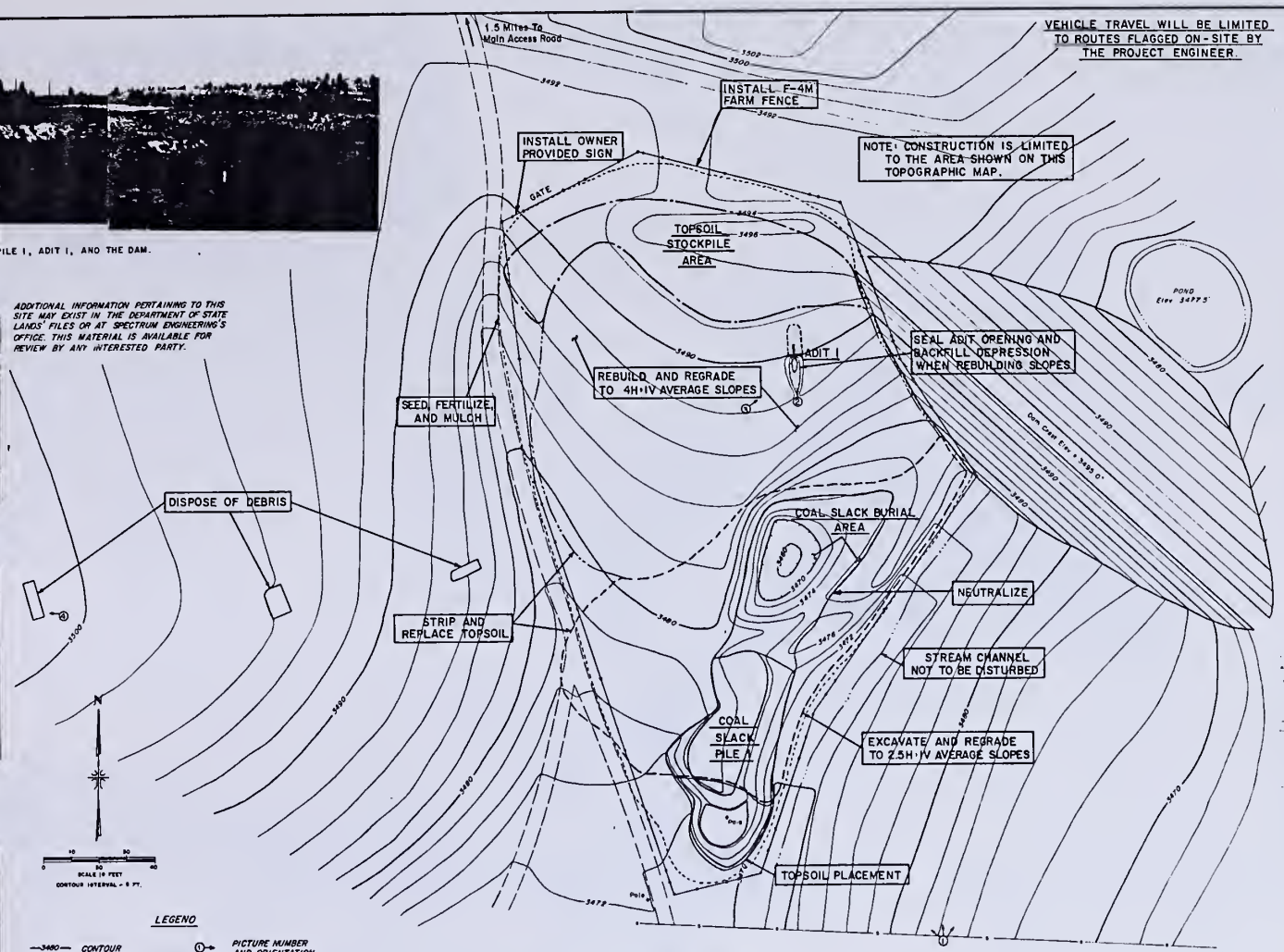


② PICTURE 2 SHOWS THE OPENING OF ADIT 1.

③ PICTURE 3 SHOWS ADIT DEPRESSION 1.

④ PICTURE 4 SHOWS THE ROOT CELLAR REMAINS.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.


1.5 Miles To Main Access Road
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.
INSTALL F-4M FARM FENCE
INSTALL OWNER PROVIDED SIGN
NOTE: CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP.
GATE
TOPSOIL STOCKPILE AREA
POND Elev. 3477.5'
SEAL ADIT OPENING AND BACKFILL DEPRESSION WHEN REBUILDING SLOPES
ADIT 1
REBUILD AND REGRADE TO 4H:1V AVERAGE SLOPES
SEED, FERTILIZE, AND MULCH
Dunn Coulee Elev. = 3485.0'
DISPOSE OF DEBRIS
COAL SLACK BURIAL AREA
NEUTRALIZE
STRIP AND REPLACE TOPSOIL
STREAM CHANNEL NOT TO BE DISTURBED
COAL SLACK PILE 1
EXCAVATE AND REGRADE TO 2.5H:1V AVERAGE SLOPES
TOPSOIL PLACEMENT
Pole
N
SCALE 10 FEET
CONTOUR INTERVAL = 5 FT.

LEGEND

- 3480 — CONTOUR
- COAL SLACK
- DRAINAGE
- ① → PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT

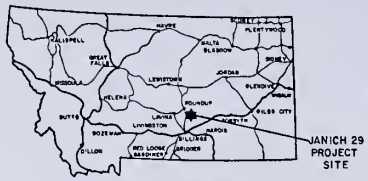
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle DUNN MOUNTAIN SOUTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

WORK DESCRIPTION

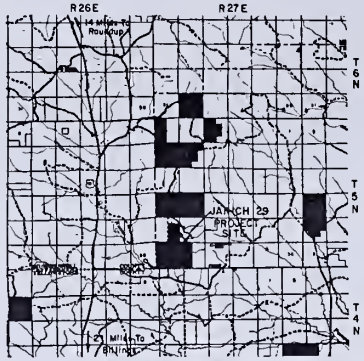
- INSTALL 24" DIAMETER CMP CULVERT ON THE ACCESS ROAD (SEE SITE LOCATION MAP).
- DISPOSE OF ALL DEBRIS LITTERING THE SITE.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ALSO ON THE HAUL ROADS.
- STRIP AND STOCKPILE TOPSOIL FROM THE AREAS TO BE EXCAVATED AND REBUILT.
- EXCAVATE AND REGRADE THE DESIGHATED AREAS TO 2.5H:1V AVERAGE SLOPES.
- REBUILD AND REGRADE THE DESIGHATED AREAS TO 5H:1V AVERAGE SLOPES.
  - ADIT 1 AND ITS ASSOCIATED DEPRESSION WILL BE SEALED AND BACKFILLED DURING RECONTOURING.
  - COAL SLACK REMOVED FROM THE EXCAVATED AREA WILL BE PLACED IN SUCH A MANNER THAT 6" OF SUBSOIL AND 6" OF TOPSOIL CAN BE PLACED ON IT.
- NEUTRALIZE ALL COAL SLACK AREAS WITH CALCIUM CARBONATE (LIME).
- PLACE TOPSOIL FROM THE STOCKPILE ON THE EXCAVATED AREA, THE REBUILT AREA, AND THAT PORTION OF COAL SLACK PILE 1 NOT INCLUDED WITHIN THE EXCAVATED AREA.
- REVEGETATE THE DISTURBED AREAS INCLUDING HAUL ROADS.
- INSTALL F-4M FARM FENCE AS SHOWN.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

WORK SUMMARY TABLE

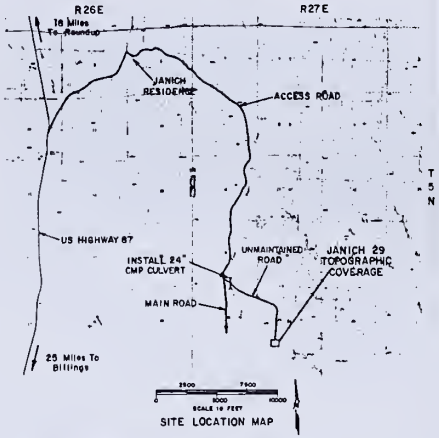
ITEM	DESCRIPTION	ACTION	QUANTITY
CULVERT	24" DIAMETER CMP	INSTALL ON ACCESS ROAD	40 LF
ADIT 1 & ADIT 1 DEPRESSION	7 x 4' OPENING	BACKFILL WITH REGRADE MATERIAL	30 LCY
REGRADE AREA	SEE TOPOGRAPHIC MAPS	EXCAVATE AND REBUILD AS SHOWN	710 LCY
TOPSOIL		STRIP AND STOCKPILE	715 LCY
		PLACE FROM STOCKPILE	715 LCY
DEBRIS	BIODEGRADABLE	DISPOSE OF	10 PICKUP LOADS
WATER	SUBSIDENCE & REGRADE AREAS	FOR COMPACTION	11,000 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	2,000 GALLONS
	TOTAL		13,000 GALLONS
FARM FENCE	TYPE F-4M	INSTALL AS SHOWN	500 LF
	SINGLE PANELS		2 EACH
	DOUBLE PANELS		9 EACH
	TYPE G-2 GATE	INSTALL 1 AS SHOWN	16 LF
NEUTRALIZE - 0.10 ACRES	COAL SLACK AREAS	100 % CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" SLICE)	3,000 LBS
REVEGETATION OF ENTIRE DISTURBANCE AREA - 0.65 ACRES	SEED APPLICATION (23 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
	15 LBS PLS	60 LBS	2,000 LBS



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LANDOWNER AND CONTACT
SECTION 29, T5N, R27E

NICK AND CLARA JANICH
484 OLD DIVIDE ROAD
BOX 341
ROUNDUP, MT. 59072
PHONE (406) 323-1848

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

JANICH 29 SITE

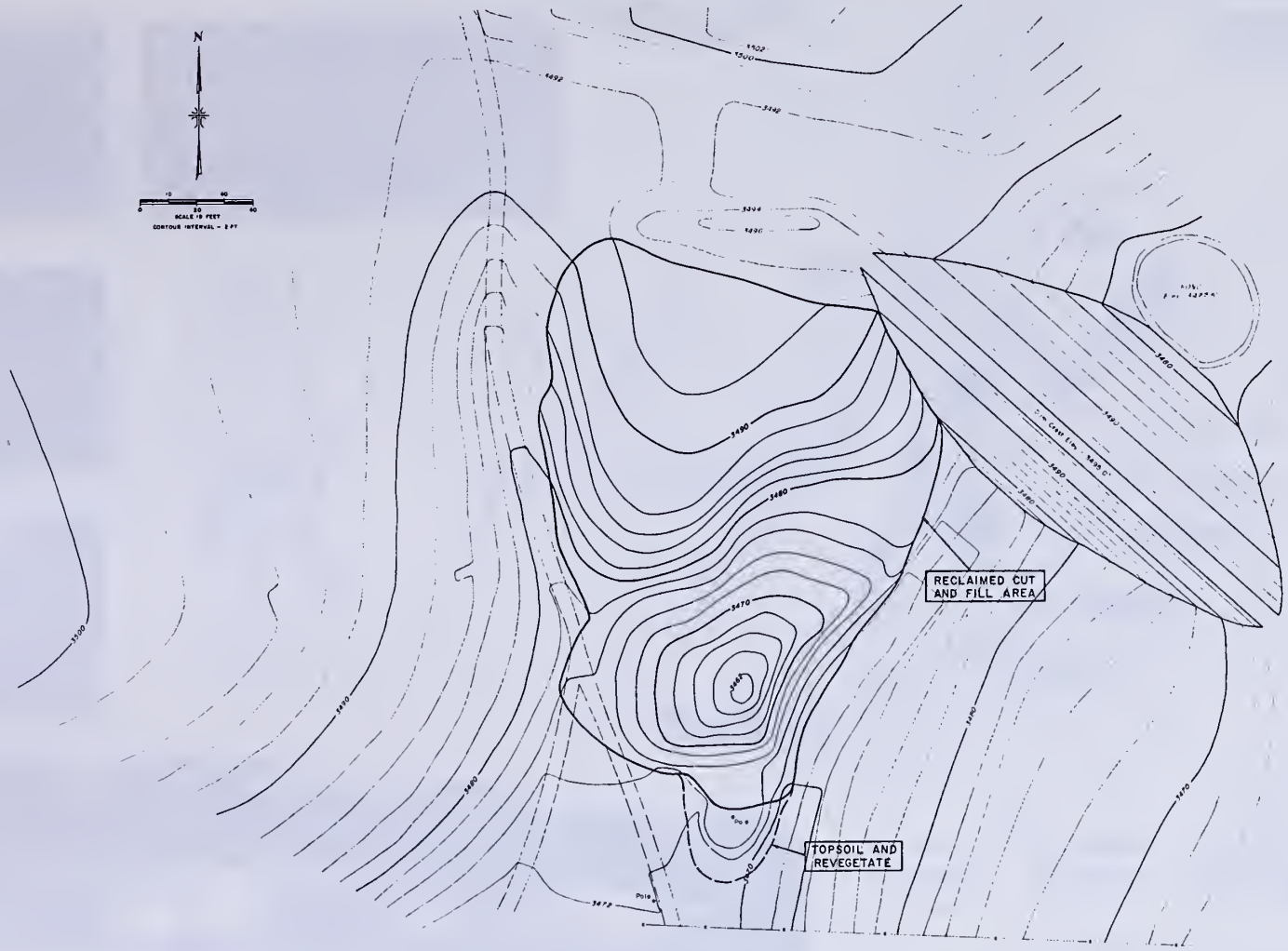
SECTION 29, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:
REVISIONS: NO. | DATE | BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 2



JANICH 29 SITE
ESTIMATED POST RECLAMATION TOPOGRAPHY

NOTE: THIS TOPOGRAPHY IS AN ESTIMATE OF POST RECLAMATION TOPOGRAPHY. ACTUAL POST RECLAMATION TOPOGRAPHY MAY VARY SLIGHTLY

SITE PLAN AND GENERAL LAYOUT

JANICH 29 SITE
SECTION 29, T5N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

REVISIONS NO.	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 2 of 2

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

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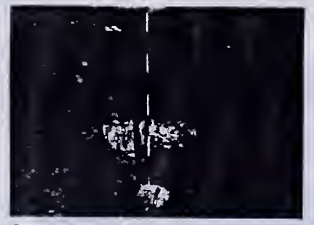
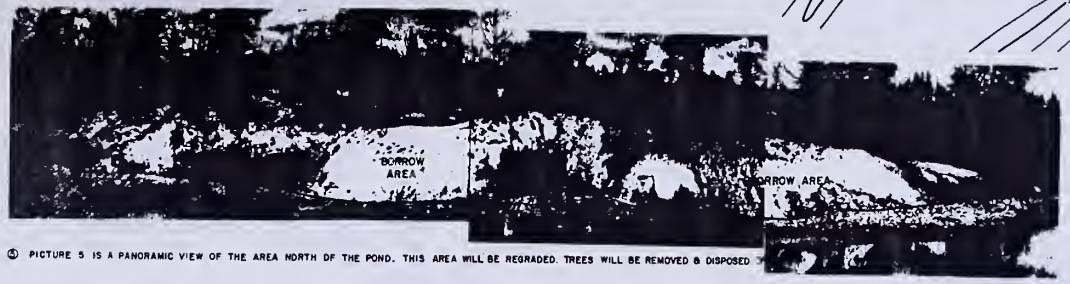
① PICTURE 1 SHOWS SUBSIDENCE PIT 3.

② PICTURE 2 SHOWS SUBSIDENCE PIT 4.



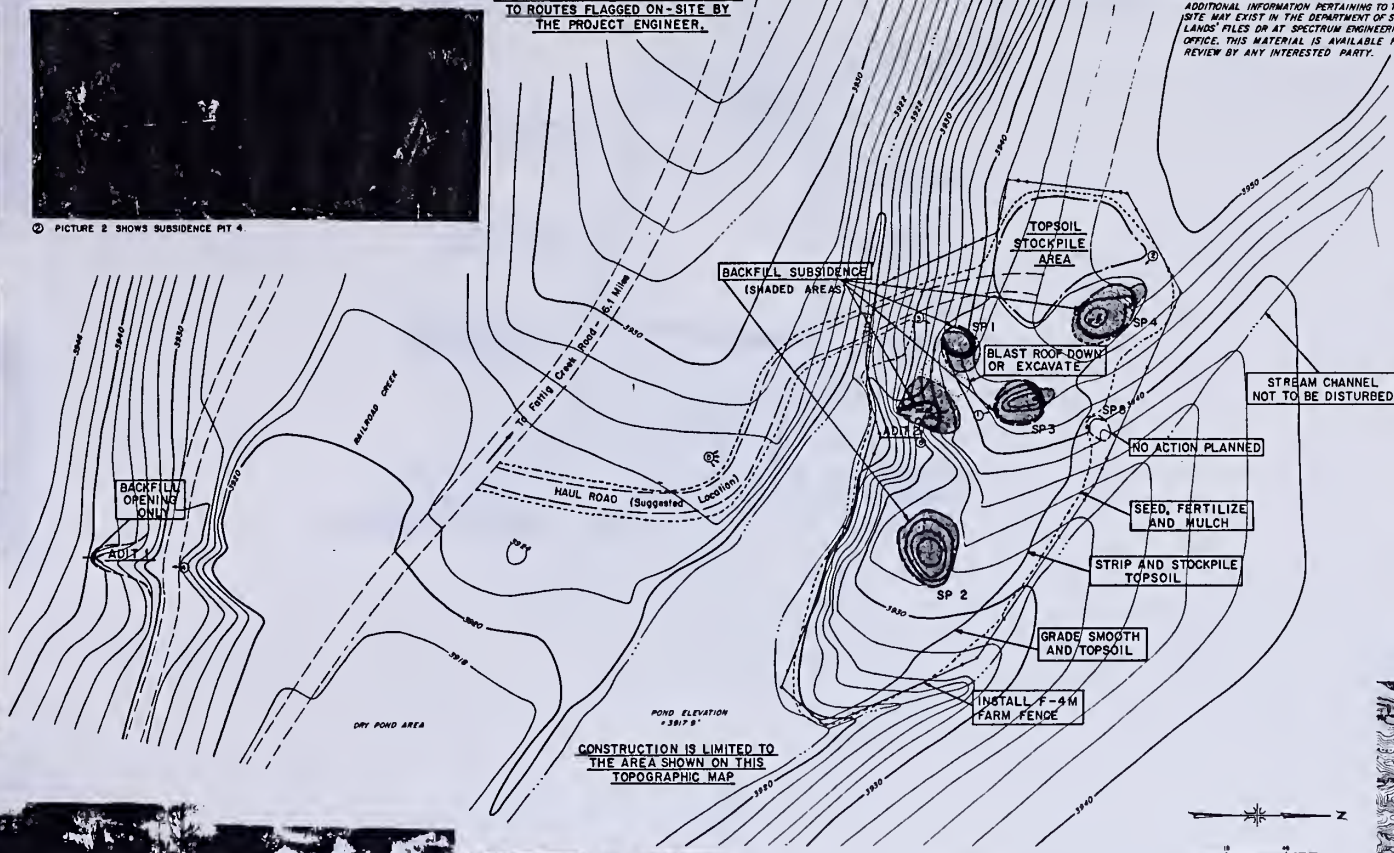
③ PICTURE 3 SHOWS SUBSIDENCE PIT 1.

④ PICTURE 4 IS TAKEN LOOKING TOWARD THE BACK OF ADIT 1.

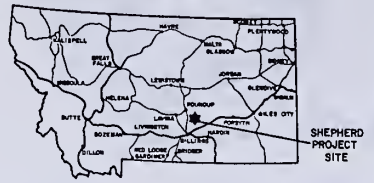


⑤ PICTURE 5 IS A PANORAMIC VIEW OF THE AREA NORTH OF THE POND. THIS AREA WILL BE REGRADED. TREES WILL BE REMOVED & DISPOSED

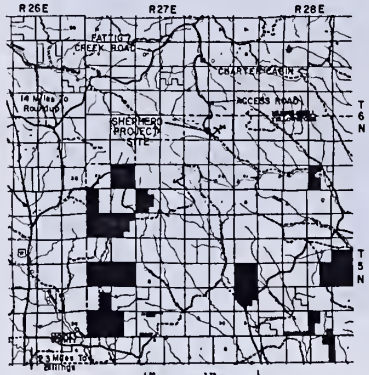
⑥ PICTURE 6 IS TAKEN LOOKING INTO THE UNDERGROUND VOID OF ADIT 2.



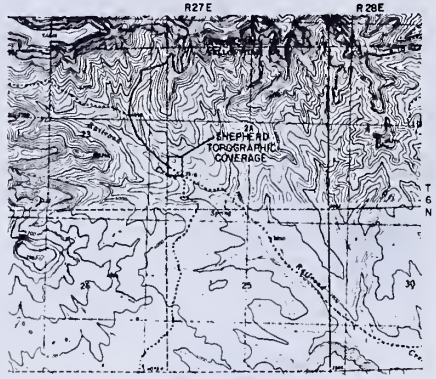
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

LEGEND

- 3940 — CONTOUR
- UNDERGROUND EXTENT (EST.)
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- SP1 SUBSIDENCE PIT (SP) NUMBER
- OPEN ADIT

SCALE IN FEET
CONTOUR INTERVAL = 2 FT.

Vertical Datum Based On Interpolation Of USGS 7½ Quadrangle: DUNN MOUNTAIN NORTH Topography Prepared From Ground Survey Conducted In 1987 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
ADIT 1	3 x 1' OPENING	SEAL	5 LCY
ADIT 2	LARGE ARCUATE OPENING	SEAL AND BACKFILL	60 LCY
SUBSIDENCE PIT 1	24 x 18 x 8'	BACKFILL	40 LCY
SUBSIDENCE PIT 2	SEE TOPOGRAPHIC MAP	BACKFILL	110 LCY
SUBSIDENCE PIT 3	27 x 21 x 7'	BACKFILL	60 LCY
SUBSIDENCE PIT 4	40 x 22 x 10'	BACKFILL	245 LCY
SUBSIDENCE PIT 5	12 x 9 x 1'	NO ACTION	--
PITS 1 - 4 AND ADIT 2 AREAS	SEE TOPOGRAPHIC MAP	REGRADE	170 LCY
TOPSOIL		STRIP AND STOCKPILE	365 LCY
TOPSOIL		PLACE FROM STOCKPILE	365 LCY
DEBRIS	NON-BIODEGRADABLE	DISPOSE OF	1 PICKUP LOAD
WATER	SUBSIDENCE/REGRADE AREAS	FOR COMPACTION	10,000 GALLONS
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	3,000 GALLONS
	TOTAL		13,000 GALLONS
FARM FENCE	TYPE F-4H FARM FENCE	INSTALL AS SHOWN	530 LF
SINGLE PANELS			1 EACH
DOUBLE PANELS			11 EACH
TYPE G-2 GATE		INSTALL 1 AS SHOWN	16 LF

REVEGETATION		SEED APPLICATION (23 LBS PLS/ACRE)	FERTILIZER APPLICATION (92.5 LBS NUTRIENT/ACRE)	MULCH APPLICATION (3000 LBS/ACRE)
RECLAIMED AREA -	0.58 ACRE	14 LBS PLS	54 LBS	1,800 LBS
HAUL ROADS -	0.06 ACRE	2 LBS PLS	6 LBS	200 LBS
TOTALS	0.64 ACRE	16 LBS PLS	80 LBS	2,000 LBS

WORK DESCRIPTION

- REMOVE AND DISPOSE OF TREES AS NECESSARY AND ANY DEBRIS.
- PROVIDE WATER FOR USE IN COMPACTION AND FOR DUST SUPPRESSION IN THE CONSTRUCTION AREA AND ON THE HAUL ROAD.
- BACKFILL THE OPENING IN THE BACK OF ADIT 1 USING HAND TOOLS.
- SALVAGE AND STOCKPILE TOPSOIL FROM THE BORROW AREA AND THE SUBSIDENCE PITS.
- BLAST THE AREA BETWEEN SUBSIDENCE PIT 1 AND ADIT 2 TO ENCOURAGE ROOF FAILURE, OR EXCAVATE THE MINE WORKINGS IN THIS AREA.
- BACKFILL ADIT 2 AND SUBSIDENCE PITS 1 THROUGH 4.
- REGRADE THE BORROW AREA SMOOTH.
- PLACE TOPSOIL OVER ADIT 2, THE BACKFILLED SUBSIDENCE PITS, AND THE REGRADED AREAS.
- SEED, FERTILIZE, AND MULCH THE DISTURBED AREAS INCLUDING HAUL ROADS.
- INSTALL F-4H FARM FENCE AS SHOWN.
- ADDITIONAL WORK DESCRIPTION DETAILS CAN BE FOUND IN THE SPECIAL PROVISIONS.

LANDOWNER AND CONTACT

N½, SW¼, W½SE¼, and SE¼SE¼
SECTION 24, T6N, R27E

CHARTER RANCH INC.
ANN or STEVE CHARTER
ROUTE 1; SHEPHERD, MT, 59079
PHONE: (406) 967-2151

NOTICE

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SITE PLAN AND GENERAL LAYOUT

SHEPHERD SITE

SECTION 24, T6N, R27E
YELLOWSTONE COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

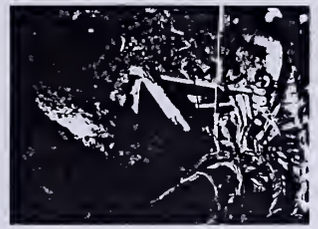
DATE: 12-28-87
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

REVISIONS		
NO.	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

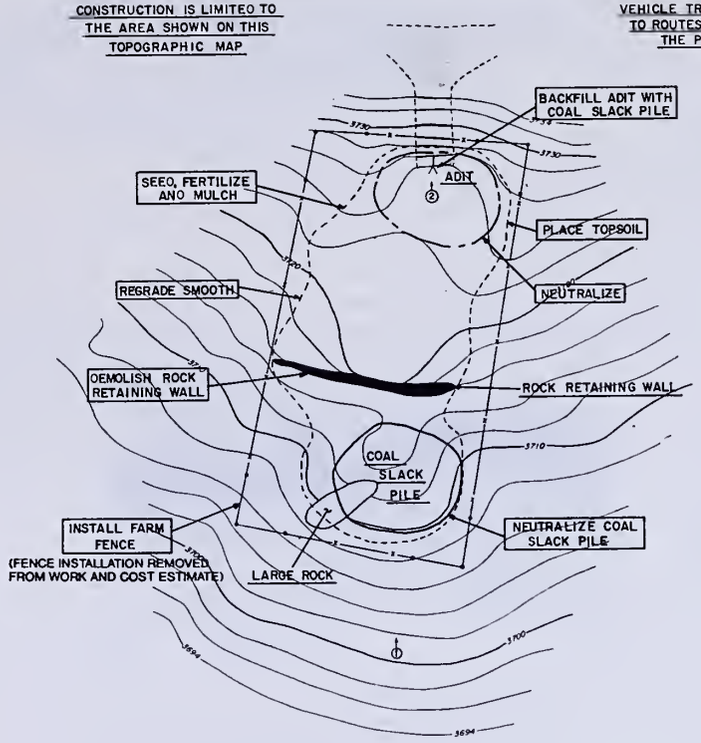
① PICTURE 1 SHOWS THE ROCK RETAINING WALL AND THE COAL SLACK PILE ADJACENT TO AND IN FRONT OF THE WALL.



② PICTURE 2 SHOWS THE ADIT OPENING.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



WORK DESCRIPTION

Strip and stockpile all topsoil from the area to be regraded.

Remove debris and timbers from within and near the mine opening.

Backfill the open adit with coal slack material. Demolish the stone retaining wall and stopmen at near adit opening. Remove remainder of coal slack pile and place near adit opening. See site plan for details.

Neutralize the coal slack areas. Regrade the site to a smooth uniform slope as shown on the site plan. Place topsoil over regrade area. Topsoil will be borrowed from near the project site.

Fertilize, seed, and mulch all disturbed areas.

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY	TOTAL NO. OF UNITS	CONTRACTOR'S LUMP SUM ESTIMATE ($)
TOPSOIL	TOPSOIL BORROW AREA	STRIP AND STOCKPILE	10 BCY	10 BCY	$ 10.00
SUBSOIL	ADIT AND SLACK AREAS	REGRADE	40 BCY	40 BCY	50.00
RETAINING WALL		DEMOLISH AND DISPOSE			200.00
TOPSOIL	ADIT AND SLACK AREAS	PLACE FROM BORROW SITE	30 BCY	30 BCY	30.00
	TOPSOIL BORROW AREA	PLACE FROM STOCKPILES	10 BCY	10 BCY	10.00
DEBRIS	SCATTERED	DISPOSE	2 PICKUP LOADS	2 P.U. LOADS	40.00
				SUBTOTAL	$ 360.00

ITEM	DESCRIPTION	ACTION	QUANTITY	TOTAL NO. OF UNITS	CONTRACTOR'S UNIT COST EST ($)	EXTENSION
OPEN ADIT		CLOSE	1 EACH		500.00	500.00
WATER	ADIT AND SLACK AREA REGRADE CONSTRUCTION AREAS AND HAUL ROADS	FOR COMPACTION	200 GALLONS			
		DUST SUPPRESSION	500 GALLONS			
			700 GALLONS	.7 KGAL	25.00	17.50
NEUTRALIZE - 0.014 ACRES	COAL SLACK AREAS	100% CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/AC* SLICE)	420 LBS	0.014 ACRES	1,860.00	26.33
SEED FERTILIZER MULCH		21 LBS PLS/ACRE X 0.06 ACRE = 1.3 LBS 92.5 LBS NUTRIENT/ACRE X 0.06 ACRE = 5 LBS 3000 LBS/ACRE X 0.06 ACRE = 200 LBS		0.06 ACRE	1,223.00	73.38
				SUBTOTAL		$ 417.21
OTHER						
	MOBILIZATION				150.00	
	ADD 7 DAYS TO THE CONTRACT TIME				0.00	
				SUBTOTAL		$ 150.00
				GRAND TOTAL		$1,007.21

NOTE:
1. SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS FOR THE ORIGINAL CONTRACT APPLY TO THE ADDITIONAL WORK DESCRIBED HERE.

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: PARK COULEE, MT. Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

LEGEND

—3700— CONTOUR
① PICTURE NUMBER AND ORIENTATION
COAL SLACK
UNDERGROUND MINE WORKINGS
DRAINAGE
OPEN ADIT

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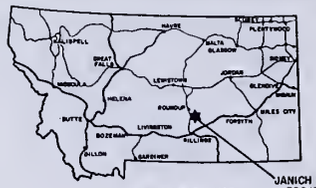
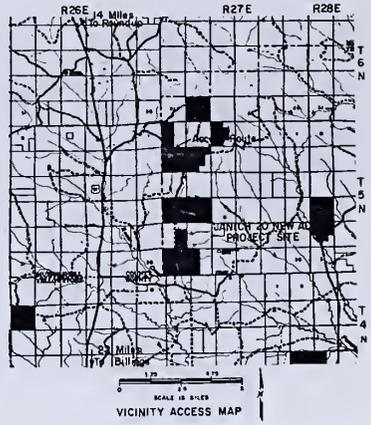
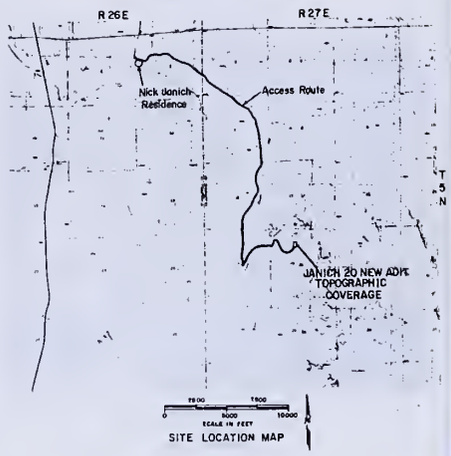


STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

JANICH 20 NEW ADIT SITE
SECTION 20, T5N, R23E
YELLOWSTONE COUNTY, MONTANA

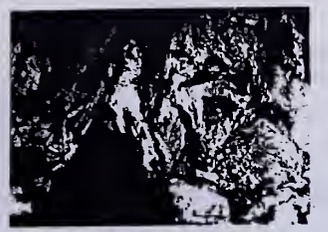
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE	December 1989
DRAWN BY	DLO
CHECKED BY	
APPROVED BY	

REVISIONS NO.	DATE	BY

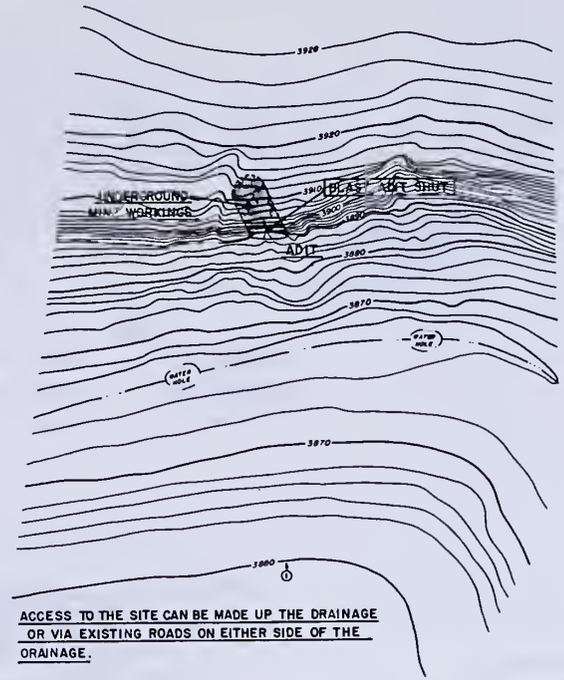
SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

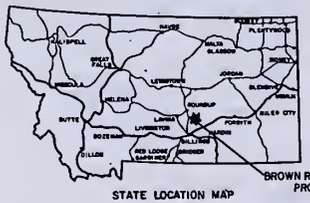


① PICTURE 1 SHOWS THE ADIT OPENING.

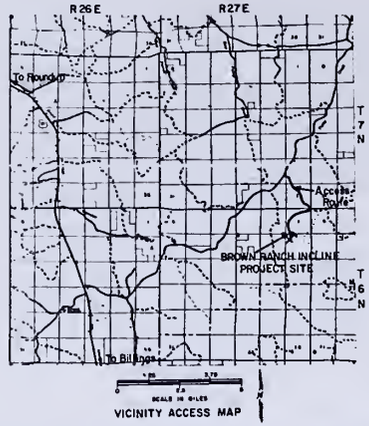
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



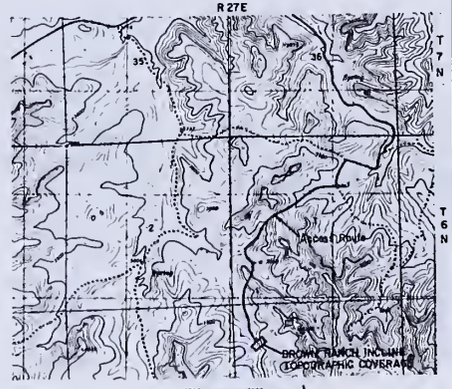
ACCESS TO THE SITE CAN BE MADE UP THE DRAINAGE OR VIA EXISTING ROADS ON EITHER SIDE OF THE DRAINAGE.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle - DUNN MTN. NORTH Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

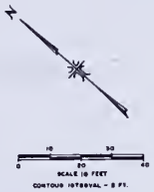
WORK DESCRIPTION

1. Blast adit shut.

CONTRACTOR'S LUMP SUM ESTIMATE

$ _____

SUBMITTED BY: _____ CONTRACTOR DATE: _____
RECOMMENDED BY: _____ ENGINEER DATE: _____
APPROVED BY: _____ OWNER DATE: _____



LEGEND

—5825— CONTOUR
WASTE DUMP
DRAINAGE
① PICTURE NUMBER AND ORIENTATION
UNDERGROUND MINE WORKINGS
OPEN ADIT

LANDOWNER

CONSOL LAND DEVELOPMENT CO.
JAMES O. SANDVIG
P.O. BOX 98
DECKER, MT. 59025
PHONE (406) 757-2285

CONTACT FOR LOCKED GATE

RAYMOND HILLMAN (LESSEE)
BOX 165
MUSSELSHELL, MT. 59059
PHONE (406) 947-3220

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

SITE PLAN AND GENERAL LAYOUT

BROWN RANCH INCLINE SITE

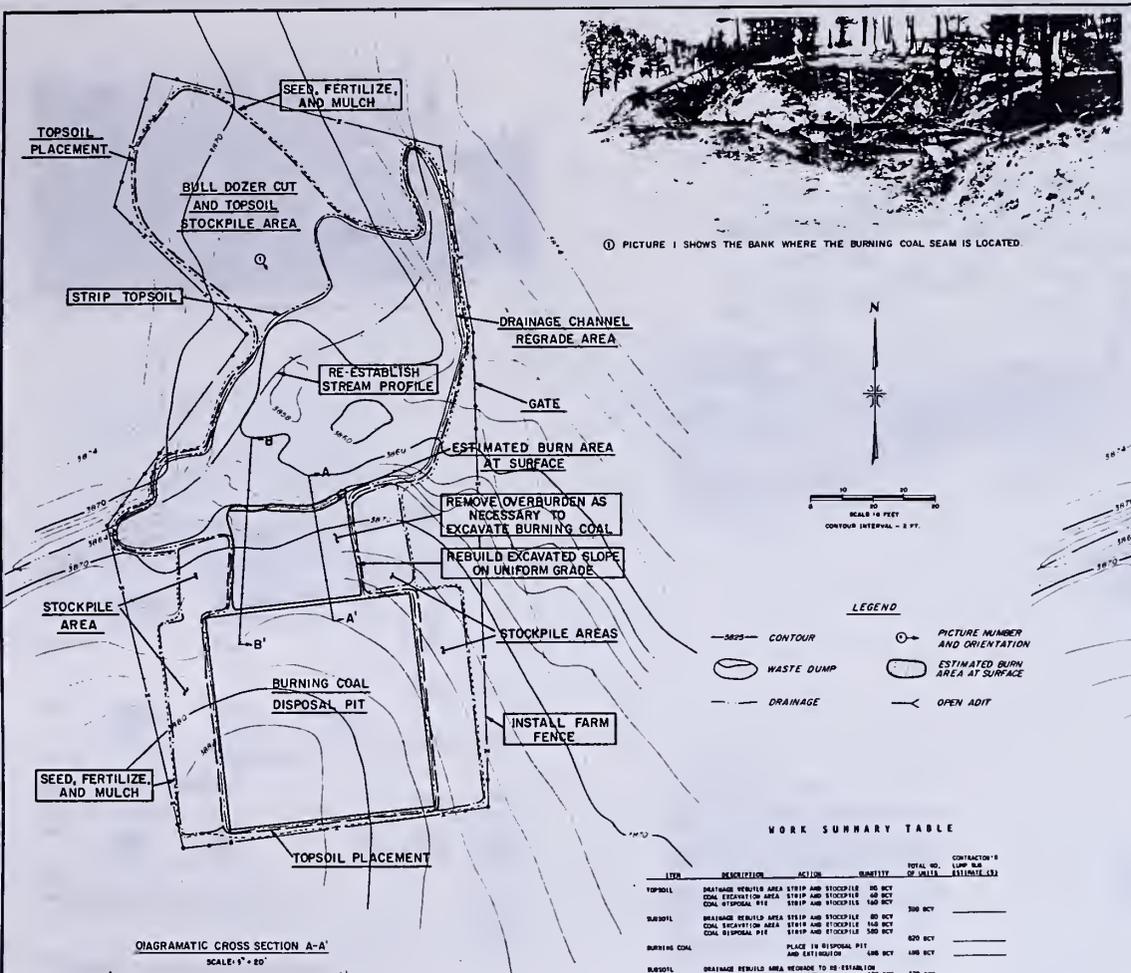
SECTION 12, T6N, R2E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: December 1988
DRAWN BY: GLO
CHECKED BY:
APPROVED BY:
REVISIONS: NO. DATE BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

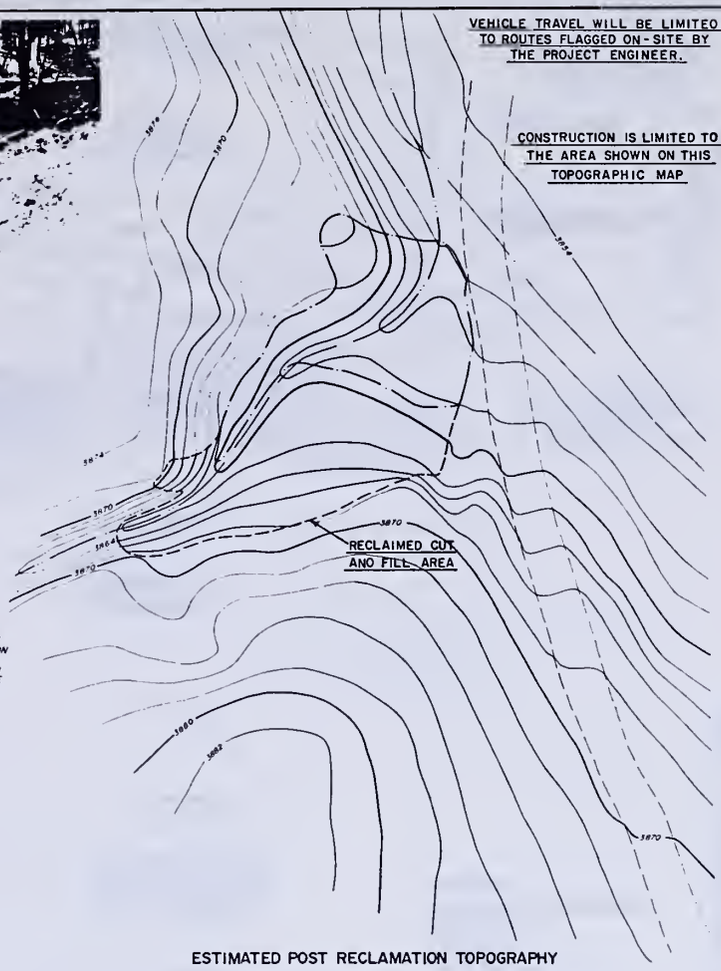
SHEET NO. 1 of 1



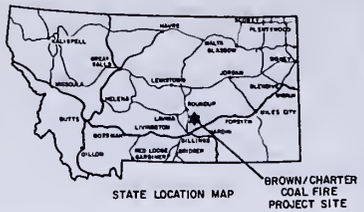
① PICTURE 1 SHOWS THE BANK WHERE THE BURNING COAL SEAM IS LOCATED.

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

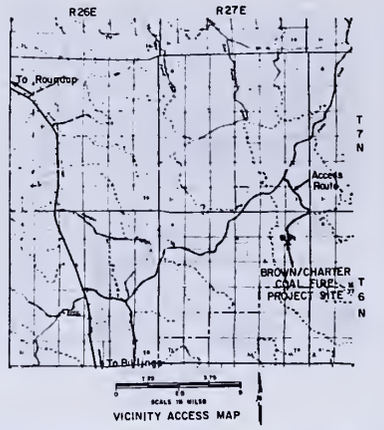
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP



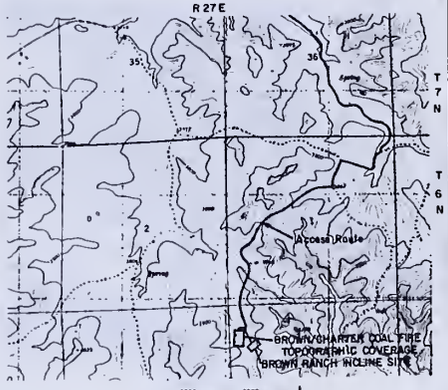
ESTIMATED POST RECLAMATION TOPOGRAPHY



STATE LOCATION MAP



VICINITY ACCESS MAP



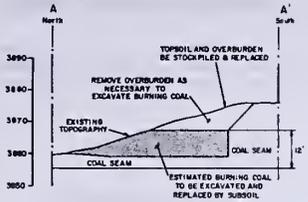
SITE LOCATION MAP

LEGEND

- 5825 — CONTOUR
- WASTE DUMP
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- ESTIMATED BURN AREA AT SURFACE
- OPEN ADIT

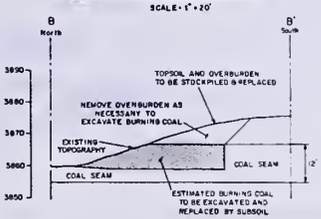
DIAGRAMATIC CROSS SECTION A-A'

SCALE: 1" = 20'



DIAGRAMATIC CROSS SECTION B-B'

SCALE: 1" = 20'



LANDOWNER

CONSOL LAND DEVELOPMENT CO.
JAMES D. SANDVIG
P.O. BOX 98
DECKER, MT. 59025
PHONE: (406) 757-2285

CONTACT FOR LOCKED GATE

RAYMOND HILLMAN (LESSEE)
BOX 165
MUSSELSHELL, MT. 59059
PHONE: (406) 947-3220

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY	TOTAL NO. OF UNITS	CONTRACTOR'S LUMP SUM ESTIMATE ($)
TOPSOIL	DRAINAGE REBUILD AREA	STRIP AND STOCKPILE	80 BCY		
	COAL EXCAVATION AREA	STRIP AND STOCKPILE	60 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	160 BCY	300 BCY	
SUBSOIL	DRAINAGE REBUILD AREA	STRIP AND STOCKPILE	80 BCY		
	COAL EXCAVATION AREA	STRIP AND STOCKPILE	160 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	580 BCY	820 BCY	
BURNING COAL		PLACE IN DISPOSAL PIT AND EXTINGUISH	486 BCY	486 BCY	
SUBSOIL	DRAINAGE REBUILD AREA	REGRADE TO RE-ESTABLISH DRAINAGE	120 BCY	120 BCY	
SUBSOIL	DRAINAGE REBUILD AREA	PLACE FROM STOCKPILES	0 BCY		
	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	650 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	170 BCY	820 BCY	
TOPSOIL	DRAINAGE REBUILD AREA	PLACE FROM STOCKPILES	130 BCY		
	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	60 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	80 BCY		
	BULL DOZER CUT	PLACE FROM STOCKPILES	50 BCY	300 BCY	
CLEARING AND GRUBBING		AS NECESSARY		0.25 AC	
				SUBTOTAL	$

					CONTRACTOR'S UNIT COST EST ($)	EXTENSION
WATER	BURNING COAL	EXTINGUISH	14,000 GALLONS			
	RECLAIMED AREAS	FOR COMPACTION	5,000 GALLONS			
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	10,000 GALLONS			
	TOTAL		29,000 GALLONS	29.0 KGAL		
EROSION CONTROL BLANKET	EXCAVATED SLOPE	PLACE	120 SY	120 SY		
SEED FERTILIZED MULCH	21 LBS PLS/ACRE x 0.44 ACRES = 9.5 LBS 92.5 LBS NITROGEN/ACRE x 0.44 ACRES = 41 LBS 3000 LBS/ACRE x 0.44 ACRES = 1,400 LBS			0.44 ACRE		
FARM FENCE	TABM FENCE TYPE T-4M	INSTALL		550 LIN FT		
	DOUBLE GATE	INSTALL		8 EACH		
	SINGLE PANEL	INSTALL		2 EACH		
	GATE (T)	INSTALL		15 LIN FT		
				SUBTOTAL		$
EXTRAS						
				SUBTOTAL		$
				GRAND TOTAL		$

NOTES:
1. SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS FOR THE ORIGINAL CONTRACT APPLY TO THE ADDITIONAL WORK DESCRIBED HERE.
2. QUANTITIES ARE SUBJECT TO CHANGE DEPENDING ON VOLUME OF BURNING COAL FOUND.
3. VOLUMES CALCULATED ASSUMING 5' OF 12' SEAM IS ON FIRE AND ASSUMING FIRE EXTENDS 25' INTO HILLSIDE.

WORK DESCRIPTION

Strip and stockpile all topsoil from the drainage channel regrade area, the areas to be regraded, the disposal area, and the slope containing the burning coal.

Regrade the drainage to the area shown on the site plan.

Remove the overburden and expose the burning coal. Excavate the burning coal until all of the burning coal has been removed as determined by the owner's representative. See the site plan for details. Clear and grub as necessary.

Haul the burning coal to the disposal area and place in maximum 6" lifts watering the burning coal as necessary to extinguish the coal and compact each lift.

Backfill the slope from which the burning coal was removed with material excavated from the burning coal disposal pit. Place access material from the new drainage channel and the disposal pit over extinguished coal insuring a minimum of 5' of subsoil cover. Regrade entire disposal area as necessary (see site plan). Place 6" of topsoil over all regraded areas and new drainage channel.

Fertilize, seed, and mulch all disturbed areas. Erosion control blanket will be placed on steep slopes.

Install fence as shown on site plan.

SUBMITTED BY: _____, CONTRACTOR DATE: _____

RECOMMENDED BY: _____, ENGINEER DATE: _____

APPROVED BY: _____, OWNER DATE: _____

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: DUNN MTN. NORTH Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Close And Has Not Been Field Checked.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

SITE PLAN AND GENERAL LAYOUT

BROWN/CHARTER COAL FIRE SITE

SECTION 12, T6N, R27E
MUSSELSHELL COUNTY, MONTANA

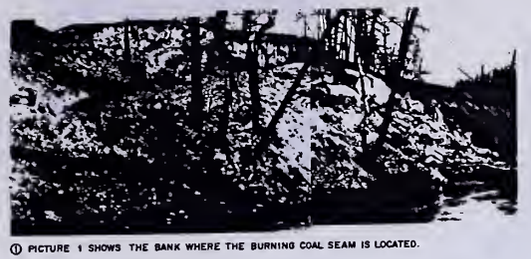
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: December 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

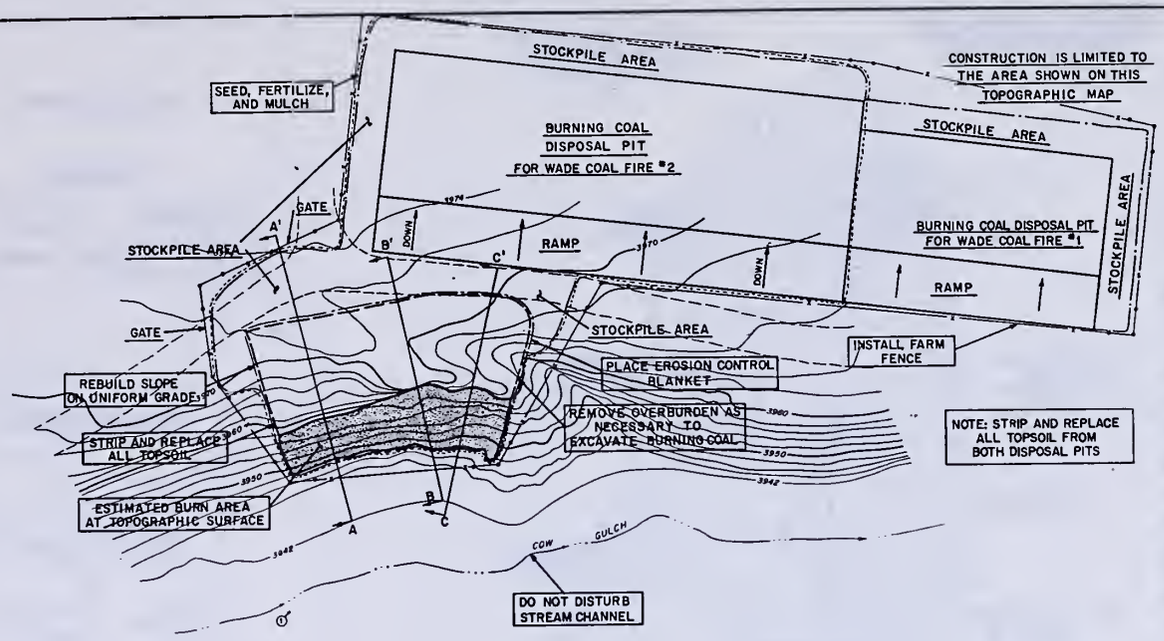
REVISIONS		
NO.	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
3302 4th AVE NORTH
BILLINGS, MONTANA

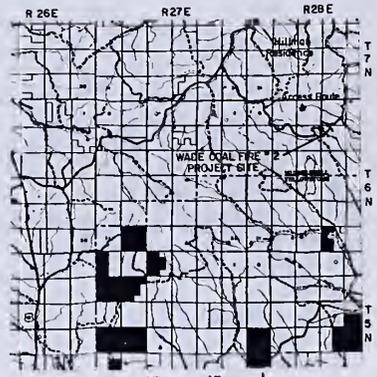
SHEET NO. 1 OF 1



① PICTURE 1 SHOWS THE BANK WHERE THE BURNING COAL SEAM IS LOCATED.


SEED, FERTILIZE, AND MULCH
STOCKPILE AREA
CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP
BURNING COAL DISPOSAL PIT FOR WADE COAL FIRE #2
STOCKPILE AREA
GATE
STOCKPILE AREA
RAMP
BURNING COAL DISPOSAL PIT FOR WADE COAL FIRE #1
STOCKPILE AREA
RAMP
GATE
STOCKPILE AREA
INSTALL FARM FENCE
PLACE EROSION CONTROL BLANKET
REBUILD SLOPE ON UNIFORM GRADE
REMOVE OVERBURDEN AS NECESSARY TO EXCAVATE BURNING COAL
STRIP AND REPLACE ALL TOPSOIL
NOTE: STRIP AND REPLACE ALL TOPSOIL FROM BOTH DISPOSAL PITS
ESTIMATED BURN AREA AT TOPOGRAPHIC SURFACE
COW GULCH
DO NOT DISTURB STREAM CHANNEL

STATE LOCATION MAP



VICINITY ACCESS MAP

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY	TOTAL NO. OF UNITS	CONTRACTOR'S LUMP SUM ESTIMATE ($)
TOPSOIL	COAL EXCAVATION AREA	STRIP AND STOCKPILE	103 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	361 BCY	464 BCY	696.00
SUBSOIL	COAL EXCAVATION AREA	STRIP AND STOCKPILE	659 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	1,193 BCY	1852 BCY	6,482.00
BURNING COAL		PLACE IN DISPOSAL PIT AND EXTINGUISH		868 BCY	4,300.00
SUBSOIL	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	1,467 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	465 BCY	1852 BCY	2,778.00
TOPSOIL	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	173 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	291 BCY	464 BCY	696.00
CLEARING AND GRUBBING		AS NECESSARY		1/3 AC	666.00
				SUBTOTAL	$ 15,618.00

ITEM	DESCRIPTION	ACTION	QUANTITY	CONTRACTOR'S UNIT COST EST ($)	EXTENSION
WATER	BURNING COAL	EXTINGUISH	25,000 GALLONS		
	RECLAIMED AREAS	FOR COMPACTION	18,000 GALLONS		
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	10,000 GALLONS		
	TOTAL		43,000 GALLONS	45.0 KGAL	25.00	1,143.00
NEUTRALIZE - 0.22 ACRES	EXTINGUISHED COAL IN PIT	100% CALCIUM CARBONATE APPLICATION (15 TONS/ACRE/6" BLEND)	9,600 LBS	0.22 ACRES	1,880.00	413.60
SEED FERTILIZER MULCH		21 LBS PLS/ACRE X 0.41 ACRES = 8.6 LBS 10.5 LBS NITRIDE/ACRE X 0.41 ACRES = 39 LBS 3000 LBS/ACRE X 0.30 ACRES = 900 LBS		0.41 ACRES	1,223.00	501.43
EROSION CONTROL BLANKET	EXCAVATED SLOPE (0.51 ACRE)	PLACE	515 SY	510 SY	2.25	1,147.50
FARM FENCE*	TYPE F-48	INSTALL		830 LIN FT	1.75	452.50
	DOUBLE PANEL	INSTALL		10 EACH	80.00	800.00
	SINGLE PANEL	INSTALL		1 EACH	40.00	40.00
	NOTE (2)	INSTALL		88 LIN FT	5.00	151.00
* Fence for Wade 1 coal fire disposal pit included.				SUBTOTAL		$ 4,796.03
EXTRAS						
						2,000.00
				SUBTOTAL		$ 2,000.00
				GRAND TOTAL		$ 22,384.03

NOTE:
1. SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS FOR THE ORIGINAL CONTRACT APPLY TO THE ADDITIONAL WORK DESCRIBED HERE
2. QUANTITIES ARE SUBJECT TO CHANGE DEPENDING ON VOLUME OF BURNING COAL FOUND.
3. VOLUMES CALCULATED ASSUMING 12' COAL SEAM ON FIRE AND ASSUMING NINE EXTENDS 10' INTO SILLSTONE.

SUBMITTED BY:_____, CONTRACTOR DATE:_____
RECOMMENDED BY:_____, ENGINEER DATE:_____
APPROVED BY:_____, OWNER DATE:_____

WORK DESCRIPTION

Clear and grub as necessary.

Strip and stockpile topsoil from the disposal pit and area to be excavated containing the burning coal.

Remove the burning coal. Remove the overburden to expose the burning coal. Excavate the burning coal until it has all been removed as determined by the owner's representative. See the site plan for details.

Haul the burning coal to a disposal pit located near the access road and roughly 75' north of coal fire (see site plan). Place the burning coal within the pit in maximum 6" lifts. Water as necessary to extinguish the coal and compact each lift. Place 1' of subsoil over the extinguished coal. Slope the pit as necessary.

Contour the disposal pit to blend with the surrounding topography. Rebuild the excavated slope and recontour to blend with surrounding topography with coal fire overburden and excess subsoil from the disposal pit. Place 6" of topsoil over the disposal pit and rebuilt slope.

Fertilize, seed, and mulch all disturbed areas. Erosion control blanket will be placed on steep slopes.

Install fence as shown on site plan including disposal pit for Wade 1 coal fire disposal pit.

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: CHERRY HILL Topography Prepared From Ground Survey Conducted In 1980 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Close And Has Not Been Field Checked

LEGEND

- 3980 — CONTOUR
- ① — PICTURE NUMBER AND ORIENTATION
- COAL SLACK
- ESTIMATED BURN AREA AT TOPOGRAPHIC SURFACE
- DRAINAGE
- OPEN ADIT

LANDOWNER

CONSOL LAND DEVELOPMENT CO.
JAMES D. SANDVIG
P.O. BOX 98
DECKER, MT. 59025
PHONE (406) 757-2285

CONTACT FOR LOCKED GATE

RAYMOND HILLMAN (LESSEE)
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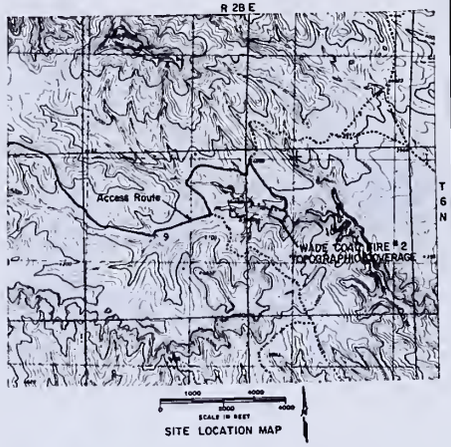
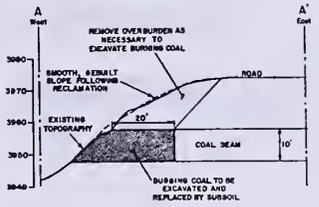
PHONE (406) 947-3220



SITE LOCATION MAP

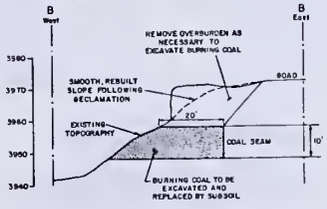
DIAGRAMATIC CROSS SECTION A-A'

SCALE- 1" = 20'



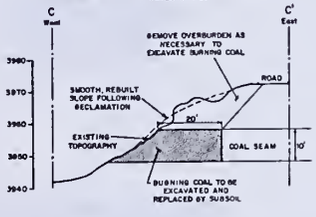
DIAGRAMATIC CROSS SECTION B-B'

SCALE- 1" = 20'



DIAGRAMATIC CROSS SECTION C-C'

SCALE- 1" = 20'



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SITE PLAN AND GENERAL LAYOUT

WADE COAL FIRE # 2 SITE

SECTION 10, T6N, R28E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

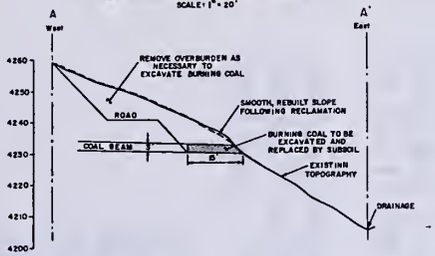
DATE: December 1980	SPECTRUM ENGINEERING
DRAWN BY: DLO	Mining and Civil Engineers
CHECKED BY:	3302 4th AVE NORTH
APPROVED BY:	BILLINGS, MONTANA
REVISIONS NO. DATE BY	SHEET NO. 1 of 1

① PICTURE 1 IS LOOKING TOWARD THE COAL FIRE AND BANK SLOUGHING FROM ACROSS THE DRAINAGE.

② PICTURE 2 IS LOOKING LATERALLY ACROSS THE COAL FIRE SLOPE.

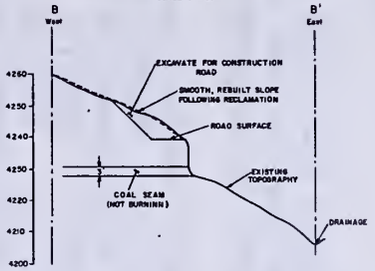
DIAGRAMATIC CROSS SECTION A-A'

SCALE: 1" = 20'



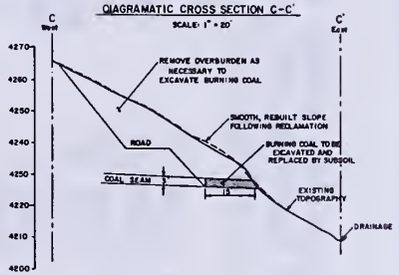
DIAGRAMATIC CROSS SECTION B-B'

SCALE: 1" = 20'



DIAGRAMATIC CROSS SECTION C-C'

SCALE: 1" = 20'



WORK SUMMARY TABLE

TYPE	DESCRIPTION	ACTION	QUANTITY	TOTAL NO. OF UNITS	CONTRACTOR'S LUMP SUM ESTIMATE ($)
TOPSOIL	COAL EXCAVATION AREA	STRIP AND STOCKPILE	95 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	45 BCY		
				700 BCY	
SUBSOIL	COAL EXCAVATION AREA	STRIP AND STOCKPILE	825 BCY		
	COAL DISPOSAL PIT	STRIP AND STOCKPILE	135 BCY		
				960 BCY	
BURNING COAL		PLACE IN DISPOSAL PIT AND EXTINGUISH		70 BCY	
				70 BCY	
SUBSOIL	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	895 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	45 BCY		
				960 BCY	
TOPSOIL	COAL EXCAVATION AREA	PLACE FROM STOCKPILES	55 BCY		
	COAL DISPOSAL PIT	PLACE FROM STOCKPILES	45 BCY		
				100 BCY	
HAUL ROAD	TOPSOIL	EXCAVATE AND STOCKPILE	570 BCY	570 BCY	
	SUBSOIL	EXCAVATE AND STOCKPILE	1,730 BCY	1730 BCY	
	SUBSOIL	PLACE FROM STOCKPILES	1,730 BCY	1730 BCY	
	TOPSOIL	PLACE FROM STOCKPILES	570 BCY	570 BCY	
CLEARING AND GRUBBING		AS NECESSARY		0.5 ACRE	
			SUBTOTAL		$

					CONTRACTOR'S UNIT COST EST ($)	EXTENSION
WATER	BURNING COAL	EXTINGUISH	2,100 GALLONS			
	RECLAIMED AREAS	FOR COMPACTION	4,700 GALLONS			
	CONSTRUCTION AREA AND HAUL ROADS	DUST SUPPRESSION	9,000 GALLONS			
		TOTAL	15,800 GALLONS	14.0 KGAL		
SEED	21 LBS PLS/ACRE @ 0.69 ACRE = 14.5 LBS					
FERTILIZER	92.5 LBS NUTRIENT/ACRE @ 0.69 ACRE = 64 LBS					
MULCH	3000 LBS/ACRE @ 0.20 ACRE = 600 LBS					
				0.69 ACRE		
FRONTIER CONTROL BLANKET	HAUL ROAD	PLACE	7,825 SY			
	RECLAIMED AREAS	PLACE	410 SY			
			2,348 SY			
			(0.40 AC)	2245 SY		
FARM FENCE	TYPE 9-48	INSTALL	990 LIN FT	990 LIN FT		
	DOUBLE PANEL	INSTALL	4 EACH	4 EACH		
			SUBTOTAL			$
EXTRAS						
			SUBTOTAL			$
			GRAND TOTAL			$

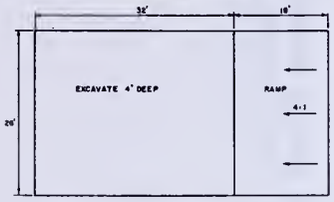
NOTES:
1. SPECIAL PROVISIONS AND TECHNICAL SPECIFICATIONS FOR THE ORIGINAL CONTRACT APPLY TO THE ADDITIONAL WORK DESCRIBED HERE.
2. QUANTITIES ARE SUBJECT TO CHANGE DEPENDING ON VOLUME OF BURNING COAL FOUND.
3. VOLUMES CALCULATED ASSUMING 5' COAL SEAM IS ON FIRE AND ASSUMING FIRE EXTENDS 95' INTO HILLSIDE.

SUBMITTED BY: _____, CONTRACTOR DATE: _____

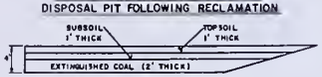
RECOMMENDED BY: _____, ENGINEER DATE: _____

APPROVED BY: _____, OWNER DATE: _____

BURNING COAL DISPOSAL PIT LOCATED AT HEAD OF DRAINAGE



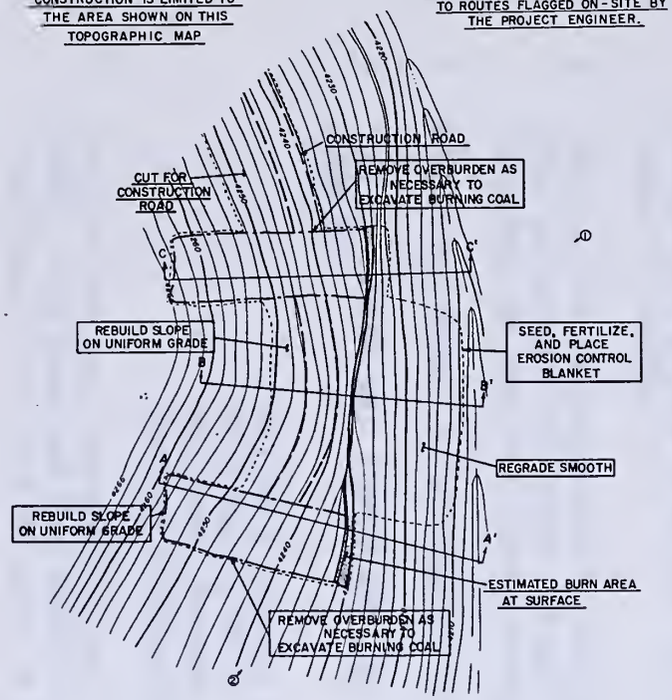
CROSS SECTION OF BURNING COAL DISPOSAL PIT FOLLOWING RECLAMATION



NOTE: DISPOSAL PIT LOCATED ON 10% SLOPE. PLACE RAMP ON UPSLOPE SIDE OF DISPOSAL PIT.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



WORK DESCRIPTION

Strip and stockpile topsoil from the new road, the disposal pit, and the area to be excavated containing the burning coal.

Cut a road from the burning coal disposal pit to the southern edge of the coal fire. This road will be field staked by the owner's representative.

Clear and grub as necessary. Remove the burning coal beginning at the southern end. Remove the overburden and expose the burning coal. Excavate the burning coal until all of the burning coal has been removed as determined by the owner's representative. See the site plan for details.

Haul the burning coal to a disposal pit located near the head of the drainage. Place the burning coal within the pit in maximum 4' lifts. Water the burning coal as necessary to extinguish the coal and compact each lift. Place 1' of subsoil over the extinguished coal. Enlarge the pit as necessary.

Recontour the disposal pit and rebuild the excavated slope to blend with the surrounding topography. Contour the construction road to blend with surrounding topography. Place 6" of topsoil over the rebuilt construction road, the disposal pit, and the rebuilt slope.

Fertilize, seed, and mulch all disturbed areas. Place erosion control blanket on steep slopes.

Fence disposal pit.

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: HAY BASIN NE Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

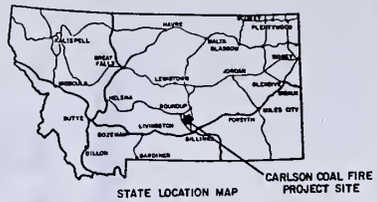
LEGEND

- 4250 — CONTOUR
- COAL SLACK
- DRAINAGE
- ① PICTURE NUMBER AND ORIENTATION
- ESTIMATED BURN AREA AT SURFACE
- OPEN ADIT

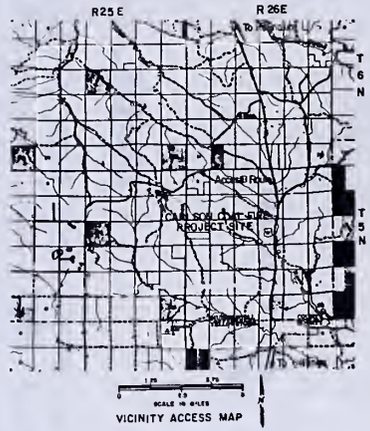
LANDOWNER & CONTACT

GERRY & DELLA CARLSON
1791 GOLO CREEK ROAD
ROUNDUP, MT. 59072
PHONE (406) 667-2131

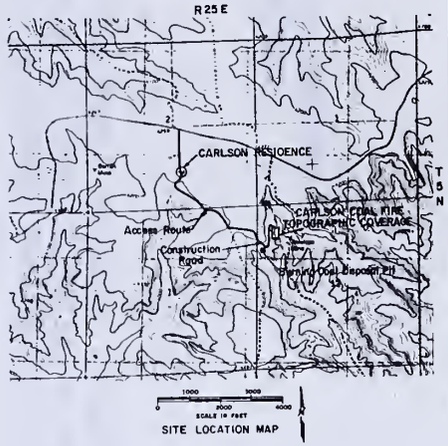
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.



STATE LOCATION MAP



VICINITY ACCESS MAP



SITE LOCATION MAP

SITE PLAN AND GENERAL LAYOUT

CARLSON COAL FIRE SITE

SECTION 12, T5N, R25E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: December 1988
DRAWN BY: DLO
CHECKED BY:
APPROVED BY:

NO.	REVISIONS DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
5308 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO. 1 of 1

C. Chronological History

1. The projects were advertised for the three consecutive weeks of October 5th, 12th, and 19th, 1988 in the Billings Gazette in Billings, the Independent Record in Helena, and the Roundup Record Tribune and Winnett Times in Roundup.

2. The pre-bid conference was held at Musselshell County Courthouse and on site on October 14, 1988. Nine contractor representatives, along with Gary Rome of Spectrum Engineering, were present.

3. Bids were opened on Wednesday, October 26, 1988.

4. The agreement was signed and the contract was awarded on November 16, 1988 to:

   Willie E. Baxter Construction
   4014 Hardin Road
   Billings, Montana 59101
   Montana Contractor Number 4884A

5. The pre-construction meeting was held at the Perry site on November 21, 1988. Gary Rome and Bill Wolff from Spectrum Engineering and Ed Baxter from Baxter Construction were in attendance.

6. The 90-day contract time started November 24, 1988 per the Notice To Proceed.

7. Work was suspended for winter shutdown on December 7, 1988, and resumed on April 19, 1989.

8. Various weather delays and change orders adding additional sites to the project extended the contract past the original time allocated for the contract. The construction time is summarized as follows:

Original Contract time	90 days (+)
Used 11/24/88 - 12/ 7/88	15 days (-)
Added by Change Order 1	28 days (+)
Used 4/19/89 - 4/26/89	8 days (-)
Used 5/ 2/89 - 5/11/89	10 days (-)
Added by Change Order 2	7 days (+)
Used 5/15/89 - 5/31/89	17 days (-)
Used 6/ 1/89 - 8/ 7/89	68 days (-)
Added by Change Order 3	28 days (+)
Used 10/11/89 - 11/10/89	31 days (-)
Used 11/19/89 - 11/21/89	3 days (-)
Total days in contract (+)	153 days
Total days used (-)	152 days

C. Chronological History (Cont.)

9. Construction was completed on November 21, 1989. The contractor used 152 days of the amended 153-day contract.

10. On July 6, 1989, Gary Rome of Spectrum Engineering, Ben Mundie of the DSL, and an OSM representative from the Casper office conducted final inspections on all of the Janich sites, the Shepherd site, and the Brown/Charter Coal Fire. The contractor completed reclamation work on the remaining sites on November 21, 1989. Snow cover occurring soon after that date has prevented final inspection of the remaining sites through the end of January, 1990.

D. Equipment

1. Case 580 backhoe/loader (52 Hp).
2. Michigan 110-11 scraper 11 yd (142 Hp).
3. Ford C-600 1500 gallon water truck.
4. John Deere JD-755 track loader (110 Hp).
5. International Water Truck 1600 gallon.
6. Leroy air compressor and Jack hammer.
7. John Deere JD-690B track backhoe.
8. Kirshman drill seeder.
9. Hay chopper.
10. Home-made crimper. This was mounted on the front of the backhoe.
11. Hydraulic post hole auger.

E. Daily Construction Log

Ed Baxter of Willie E. Baxter Construction Co. served as the contractor's on-site superintendent. Bill Wolff and Hank Lowe served as Spectrum's construction inspectors. The construction of the project was completed by site area as follows:

PERRY

Nov. 21, 1988 - Contractor moved equipment to the Perry site. Project site plans were reviewed with contractor. Jim Wilson, landowner, was informed of the start of construction. The contractor was to take the curve out of a converted disk plow to be used as the crimper.

Nov. 22, 1988 - Pre-construction photos were taken of the land and of the equipment. The contractor was to get water in Melstone, Montana. Topsoil was removed from SP-2, and a back stop was placed for a garbage pit. There was a flat tire on the loader.

Nov. 23, 1988 - Topsoil from SP-3 and overhangs around SP-3 were removed. The crimping disk was flattened with a torch. The 580 Case backhoe required maintenance. Borrowed material to SP-3, SP-1, and SP-2.

Nov. 28, 1988 - Wheat hay bales were weighed. Borrowed to SP-3. A post hole auger was installed on the front end of the loader. Post holes were staked around the garbage pit. Seven more pounds of Prairie Sandreed seed was required. Auger and set post.

Nov. 29, 1988 - Hauled borrow to SP-2&3. Installed brace posts.

Nov. 30, 1988 - Continued setting fence posts. Borrowed to SP-2. Spread topsoil SP-3. Topsoil was stripped around the adit trench. Jim Wilson visited the site.

Dec. 1, 1988 - Topsoil was put on all areas. One man worked on the fence. Backhoe needed maintenance.

Dec. 2, 1988 - Auger post holes. The mulch crimper was installed on the front end of the loader. Fertilizer was spread with a hand spreader. Began setting corner panels. Seed was drilled.

E. Daily Construction Log (Cont.)

Dec. 5, 1988 - Wheat hay for mulch was spread by hand and the mulch was crimped in. Finished setting panels.

Dec. 6, 1988 - Steve Charter was called about moving to the Shepherd site, but there was too much snow, and it was too rough. Talked to Nick Janich and moved to the Janich sites.

Dec. 7, 1988 - Contractor shut down for the winter.

JANICH SITES

Apr. 19, 1989 - Met with Gary Rome at the Spectrum Engineering office. Talked to Mr. and Mrs. Jerry Carlson. Looked over Musselshell - Yellowstone 88 sites. Ed Baxter started work on Janich 29 site. All debris was picked up and burned. Topsoil was removed and piled, and the coal slack was moved to the burial area. A scraper got stuck in the bottom of an old pond. Axle bolts broke off, down for repairs.

Apr. 20, 1989 - Scraper 2 was moved in while repairs were being made on scraper 1. Adit 1 was closed up with backhoe. Topsoil was stripped from an old pond. Coal slack was removed from pile 1 area. Post holes were staked and drilled out.

Apr. 21, 1989 - Hauled coal slack and regrade material. Set post for panels.

Apr. 24, 1989 - A new pond was excavated. Panels were set for the fence. Lime on coal slack area was spread.

Apr. 25, 1989 - Topsoil was spread, fertilized, and seeded. Equipment mobilized to Janich 20 Upper site.

Apr. 26, 1989 - Loaded hay mulch at the Janich Ranch. Installed brace wire. Started steel post and barbed wire.

Apr. 27, 1989 - Too wet to work.

Apr. 28, 1989 - Too wet to work.

E. Daily Construction Log (Cont.)

May 1, 1989 - Too wet to work.

May 2, 1989 - Spread and crimped hay mulch. Finished fence, cleaned up site, and finished mobilization to Janich 20 Upper and Lower.

May 3, 1989 - The water truck was received on the job. The brakes were not working; the contractor repaired them. Pictures were taken of the Upper 20 site. Debris was cleaned up and burned. Adit 1 and shaft 1 were closed up. Lime and topsoil were spread.

May 4, 1989 - All debris at Janich Lower 20 was picked up and burned. A haul road was made to the site with the backhoe. JD 755 track loader was received at the ranch; it broke down half way to the site.

May 5, 1989 - JD 755 track loader arrived at site. The coal slack pile was regraded. Lime was spread. A new topsoil area was found.

May 6, 1989 - A culvert was laid at the Janich Ranch. Janich 20 Lower site was measured for fertilizer and seed.

May 8, 1989 - It rained Sunday night and down poured Monday morning. Tried to put the culvert in for water truck access. Weather day.

May 9, 1989 - A road was built from Janich 20 Lower to Janich 20 Fire. The topsoil was stripped from the road. A disposal pit was dug at Janich 20 Fire. The coal seam was 5 feet thick.

May 10, 1989 - Excavation, disposal and extinguishment of burning coal continued. Slope was rebuilt.

May 11, 1989 - Finished excavating burning coal and rebuilding slope. Subsoil and topsoil was placed to grade. Began to topsoil and regrade Janich 20 Lower.

May 12, 1989 - Weather day due to rain all day.

May 15, 1989 - Access for Janich 17 Upper was checked. Lime was delivered to Janich 18 site. It was raining hard, weather day.

E. Daily Construction Log (Cont.)

May 16, 1989 - It rained all night, weather day. Ed Baxter called Nick Janich.

May 17, 1989 - Met with Ed Baxter at site. Too wet to work, weather day.

May 18, 1989 - The JD 755 loader was moved to Janich 20/29 site. Debris was burned and access was provided to adits. Adit 2 was sealed. The coal slack area was limed and topsoiled. Adit 1 was sealed. JD 755 loader was moved to Janich 20 new site. Debris was removed. Adit opening was sealed. It rained on the way out of the site.

May 19, 1989 - Too wet to work, weather day.

May 20, 1989 - Janich 20/29 site was seeded, fertilized, and mulched.

May 22, 1989 - Janich 20 Fire site was seeded, fertilized, and mulched. Regraded the road at Janich 20 Fire site. Fertilized, seeded and began to mulch. Janich 20 Lower was graded.

May 23, 1989 - Finished mulching and crimping road at Janich 20 Fire. Hydraulic lead on JD 755 loader broke. Access road was regraded. Debris was removed from site.

May 24, 1989 - JD 755 loader was fixed. Finished mulching on Janich 20 Lower. Coal slack was regraded into adit at Janich New site. A rock wall was demolished and buried. Coal slack area was limed. Topsoil was spread. Topsoil at Janich 20 Upper was finished.

May 25, 1989 - Janich 20 New site and Janich 20 Upper site was seeded, fertilized, and mulched. Mobilized to Janich 18 site. Stripped topsoil from adit and subsidence pit. The adit was backfilled. The coal slack area was limed. Debris from the site was removed. Began placing topsoil.

E. Daily Construction Log (Cont.)

May 30, 1989 - Debris was removed from Janich 20 New site. Adits 1 and 2 were sealed. A slope at Janich 17 Lower was rebuilt. Coal slack areas 1, 2, 3, and 4 were limed. Sites were topsoiled. Adit at Janich 17 Upper was sealed. Coal slack pile 3 was regraded. The coal slack area was limed.

May 31, 1989 - Janich 18 was regraded. Janich 17 Lower and Janich 18 was fertilized, seeded, and mulched. Janich 17 Upper was fertilized and seeded; the mulching was begun.

June 1, 1989 - Mulching of Janich 17 Upper was finished. Hand crimping of the site was begun.

SHEPHERD

June 6, 1989 - Excavated Adit 2 and SP-1 at the Shepherd site. Backfilled SP-1, SP-3 and SP-4. Logs and debris was burned from SP-2. Metal debris was burned in SP-4. Adits 1 and 2 were sealed. Fence panels were started.

June 7, 1989 - Finished topsoiling Shepherd site. Backfilled SP-2. The majority of the fence was erected.

June 8, 1989 - Shepherd site was fertilized, seeded, and mulched. The fence was finished. Mobilized to Brown Charter Fire.

BROWN/CHARTER COAL FIRE

June 9, 1989 - Trees were cleared from the disposal pit and burning coal area. Topsoil was removed from the burning coal area. A sump hole was dug in the drainage for the water supply. Overburden above coal seam and burning coal was excavated.

June 12, 1989 - Material from the disposal pit was stockpiled and excavated. More burning coal was excavated.

June 13, 1989 - Finished excavating the disposal pit and burning coal. Augured holes and started fence panels. Limed coal disposal pit. Rebuilt excavated slope with subsoil.

E. Daily Construction Log (Cont.)

June 14, 1989 - Finished rebuilding slope. Topsoil was placed over the site, then the site was seeded and fertilized. The drainage area was regraded. Began mulching site. Worked on fence panels.

June 15, 1989 - Finished mulching and fencing site. Mobilized to Carlson Fire site.

CARLSON COAL FIRE

June 20, 1989 - Constructed temporary fence crossing. Cleared, grubbed, and stripped topsoil from haul road. Excavated subsoil. We got rained out at 3:30 p.m.

June 22, 1989 - Finished stripping and stockpiling topsoil from haul road. Finished excavating subsoil from haul road. JD 755 loader was down for 4½ hours. Began digging holes for fence panels and excavating overburden from coal seam.

June 23, 1989 - Continued to excavate overburden above coal seam, and began to excavate the burning coal. The coal seam was 4 feet thick.

June 26, 1989 - The backhoe got stuck in the creek bottom. Continued to excavate burning coal and got the north end of the fire out. The north end was filled in with subsoil.

June 27, 1989 - The disposal pit needed to be enlarged because the coal seam was thicker than what was originally thought. Continued to excavated overburden and burning coal. The JD 755 loader was down for 1½ hours.

June 28, 1988 - Worked on JD 755 loader. Continued to excavate overburden and burning coal. The coal seam was 7 feet thick and burning. The first disposal pit was filled, limed, and covered with subsoil. The second disposal pit was dug.

June 29, 1989 - The water truck got down closer to the coal fire and we were able to water down the open face of the coal fire. Covered with overburden for a long weekend.

E. Daily Construction Log (Cont.)

July 5, 1989 - Mrs. Carlson came to the site and said we could get no more water from them. The creek was dammed up for water. Burning coal was hauled to the pit, and subsoil was hauled from the pit to the haul road.

July 6, 1989 - The coal was burning red hot. A bigger dam was built in the creek for more water. The site was visited by Gary Rome (Spectrum Engineering) and Ben Mundie (DSL). A pump was placed by the dam in the creek, and water was pumped onto the coal seam.

July 7, 1989 - The fire continued to burn. The coal will flame if left undisturbed. Two loads of water were pumped from the creek.

July 8, 1989 - The south end of the excavation was still hot. A drain pipe was placed in the dam for overflow. Removed burning coal.

July 10, 1989 - The coal fire still continued to burn in new pocket. Excavated burning coal. Trees were hauled out of creek drainage. Staked out fence for disposal pits. Measured the area of pit 2 for lime. The dam was removed from across the creek. Mr. and Mrs. Carlson visited the site, they said we could have left the dam in for stock watering. Lime was spread on coal slack.

July 11, 1989 - Worked on fence around disposal pits and on the JD 755 loader. The coal seam was inspected and no smoke was found on the fire. Subsoil was hauled to coal seam. JD 755 loader broke down with brake problems. We were shut down until July 17, 1989.

July 17, 1989 - Hauled fill to coal seam area. There was no sign of fire along the area. Looked over Antelope site with the contractor.

July 18, 1989 - The contractor will finish backfill and topsoil along the coal seam in the fall; he will also finish the fence in the fall.

E. Daily Construction Log (Cont.)

July 19, 1989 - The contractor put in some fence. Informed Mr. Carlson we would be back in the fall to finish. Drove to Klein to pick up the key from Mr. Armstrong. Went over the project with Mr. Armstrong. Will lime and fence at Klein site. Topsoil will be put on in the fall. Mobilized to Klein site.

KLEIN REVEGETATION

July 20, 1989 - Started fencing. Took pre-construction photos of the area. Removed weeds and grass on the flat area. Installed grate door on front of Powder Magazine.

July 21, 1989 - Continued fencing. Made forms for footings of grate. Poured footings for grate. Went to Musselshell County Court House for information on spotted knapweed. Received lime on job site. Finished setting panels and started stringing barbed wire.

July 24, 1989 - Spread lime with front-end loader. Continued fencing. Contractor wants to work 5-8's instead of 4-10's.

July 25, 1989 - Finished fence. Mobilized to Wade site.

WADE COAL FIRE #2

July 27, 1989 - Excavated the stream for a water supply. Excavated a pit for burning coal disposal. Constructed a haul road to the burning coal. Took pre-construction photos. Stacked disposal pit.

July 28, 1989 - Removed overburden from burning coal.

July 31, 1989 - Removed subsoil from disposal pit.

Aug. 2, 1989 - Coal was burning in spots, it was removed. At 3:30 p.m. the coal appears to be out. It was wet down to check in the morning.

Aug. 3, 1989 - No hot spots were found in the coal seam. Panels were set for fence. Lime was spread. Subsoil was spread on pit area and coal seam.

E. Daily Construction Log (Cont.)

Aug. 4, 1989 - Continued fencing.

BROWN RANCH INCLINE

Aug. 8, 1989 - Finished fencing at Wade Coal Fire #2 site. Mobilized to Brown Ranch Incline site. Made four blasts of dynamite to close the adit. Shut down until fall.

FALL FINISH WORK - TOPSOIL, SEED, FERTILIZER, MULCH, EROSION CONTROL BLANKET

WADE COAL FIRE #2

Oct. 11, 1989 - Met contractor at Brown Ranch and went to Wade site. Picked up trees that had blown over from last August. Burned debris pile. Started spreading topsoil. JD 755 down for parts.

Oct. 12, 1989 - Finished spreading topsoil and leveled the topsoil pile. Fertilized and seeded the slope and the topsoil area. Started erosion control blanket. Started to spread hay mulch. Mobilized JD 755 out of site.

Oct. 13, 1989 - Finished spreading hay mulch and crimped it in. Mobilized to Klein site.

KLEIN REVEGETATION

Oct. 16, 1989 - Mobilized the Michigan scraper and backhoe from the Janich Ranch to Klein site. The Michigan scraper hauled topsoil to a flat area; the JD 755 hauled topsoil to revegetation area. Regraded channel area.

Oct. 17, 1989 - JD 755 put ditches in revegetation area. Michigan scraper hauled topsoil to a flat area. The scraper broke down at 9:45 a.m., a brace on the floor fell off.

Oct. 18, 1989 - The equipment was fixed and working. JD 755 put ditches on revegetation area. Michigan scraper hauled topsoil to a flat area.

E. Daily Construction Log (Cont.)

Oct. 19, 1989 - Finished ditches on revegetation area. Michigan scraper hauled topsoil to a flat area, channel, and waste pile.

CARLSON COAL FIRE

- Measured for fertilizer and seed at the Carlson Fire site and found the coal fire burning.

Oct. 20, 1989 - Leveled topsoil on all areas. Augured post holes for panels.

Oct. 23, 1989 - Removed trees from borrow area. Set panels and started fence.

Oct. 24, 1989 - Drilled post holes in rock with compressor and drill. The compressor was down for three hours. Started the barbed wire.

Oct. 25, 1989 - Contractor didn't work.

Oct. 26, 1989 - Received JD 690 track backhoe at the Carlson Fire site. Mobilized JD 755 to Carlson Fire site. Started to find hot fire in the coal seam.

Oct. 27, 1989 - A pit was dug and the burning coal was excavated. The JD 690 track backhoe regraded the slope. Hauled topsoil in with JD 755.

Oct. 30, 1989 - Serviced equipment. Finished regrading slope. Started laying erosion blanket. Mobilized JD 690 backhoe to the main road.

Oct. 31, 1989 - Weather day.

Nov. 1, 1989 - Weather day.

Nov. 2, 1989 - Laid erosion blanket. Backfilled burn pit.

Nov. 3, 1989 - Topsoil was spread on fire pit area. The erosion blankets were finished. Fertilized and seeded site. Received hay at site; the hay was spread and crimped onto the haul road area.

Nov. 4, 1989 - Weather day.

E. Daily Construction Log (Cont.)

Nov. 6, 1989 - Finished hay and crimped at burn pit area. The fence was finished. Loaded JD 755 to mobilize home.

KLEIN REVEGETATION

Nov. 7, 1989 - Moved backhoe to Klein site and received the hay. There was too much wind to seed and spread hay. Weather day.

Nov. 8, 1989 - Fertilized and drilled seeded area. Finished fence.

Nov. 9, 1989 - Received hay chopper at the Klein site and spread the hay on borrow area. Had to stop spreading hay at 12:30 because of high wind. Went to Roundup to see Mr. Hougardy on the weed control board about knapweed at the Antelope site. He was not in.

Nov. 10, 1989 - Weather day because of high wind.

Nov. 19, 1989 - Finished hay and crimping at Klein site. Mobilized backhoe to Carlson site and finished hay and crimping there.

ANTELOPE MAINTENANCE

Nov. 20, 1989 - Installed culvert at Antelope Mine site. Filled in washed out places. Went to see Mr. Hougardy at the weed control board but he was not in.

MISCELLANEOUS TASKS

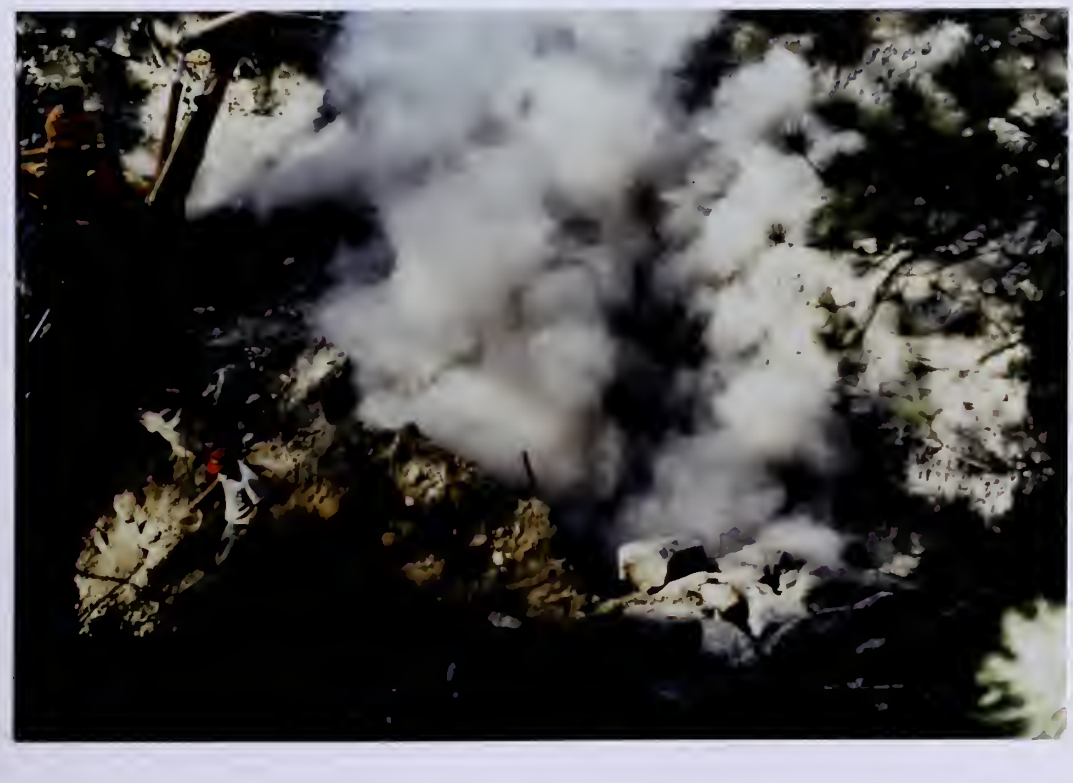
Nov. 21, 1989 - Finished Hydroseeding, mulching, and fertilizing at the Klein site. Repaired fence at the Carlson Ranch. Musselshell - Yellowstone 88 job completed.

III. SLIDES

The description of the slides taken to document the work performed at each of the sites is found in Appendix A. The original slides follow the descriptions in one volume; black and white copies follow the descriptions in the other volumes.

Two prints showing views of the reclamation work are found on the following page.

JANICH 17 UPPER. Revegetated coal slack area. Backfilled, rock-faced adit in the background.



CARLSON COAL FIRE. Placing and extinguishing burning coal in the disposal pit.

IV. COST SUMMARY

A. Final Payment Request and Reconciliation Change Orders

The following reconciliatory change orders were executed during the course of the project. The change orders account for the work performed under the original contract, as well as the work done at each of the six additional project sites.

Change Order No. 1 - Issued March 30, 1989
Change Order No. 2 - Issued May 16, 1989
Change Order No. 3 - Issued July 12, 1989
Change Order No. 4 - Issued December 7, 1989

A copy of the Final Payment Request and Change Order Numbers 1, 2, 3 and 4 are included in Appendix B of this report.

B. Cost Per Site

1. Project Cost Summary

Site	Disturbed Acres	Cost/Acre	Total Project Cost
PERRY	0.50	$ 14,310.20	$ 7,155.10
KLEIN REVEGETATION	4.47	4,433.21	19,816.46
JANICH 17 UPPER	0.23	4,482.13	1,030.89
JANICH 17 LOWER	0.166	8,047.11	1,335.82
JANICH 18	0.218	9,811.79	2,138.97
JANICH 20 UPPER	0.22	5,507.77	1,211.71
JANICH 20 LOWER	0.75	3,797.80	2,848.35
JANICH 20 FIRE	0.368	8,287.20	3,049.69
JANICH 20/29	0.44	4,498.34	1,979.27
JANICH 29	0.66	11,309.67	7,464.38
SHEPHERD	0.30	30,397.83	9,119.35
SubTotal/Avg (Bid)	8.332	$ 6,858.62	$ 57,145.99
JANICH 20 NEW ADIT	0.098	$ 10,669.08	$ 1,045.57
BROWN CHARTER FIRE	0.53	19,014.89	10,077.89
BROWN RANCH INCLINE	0.005	280,000.00	1,400.00
CARLSON COAL FIRE	0.81	25,265.04	20,464.68
WADE #2 COAL FIRE	0.55	39,127.36	21,520.05
ANTELOPE MAINTENANCE	0.01	120,000.00	1,200.00
SubTotal/Avg (Added)	2.003	$ 27,812.38	$ 55,708.19
Total/Avg (All)	10.335	$ 10,920.00	$112,858.18

2. Project Cost Breakdown

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
PERRY (0.50 acres)				
Mobilization	1 L.S.	750.00	1,500.00	750.00
Debris Removal	1 L.S.	30.00	60.00	30.00
Salvage & Replace Topsoil	240 LCY	1.00	480.00	240.00
Provide Water	1.5 Kgal	25.00	75.00	37.50
Regrade Area	50 LCY	2.00	200.00	100.00
Excavate Subsidence Depression Overhangs	112 LCY	25.00	5,600.00	2,800.00
Backfill Subsidence and Collapsed Adit Depressions	350 LCY	2.00	1,400.00	700.00
Fertilize, Seed & Mulch	0.50 Acres	1,223.00	1,223.00	611.50
Farm Fence - Type F-4M	788 L. Ft	0.75	1,182.00	591.00
Farm Fence Double Panel	10 Each	90.00	1,800.00	900.00
Farm Fence Single Panel	4 Each	60.00	480.00	240.00
Farm Fence Gates Type G-2	33 L. Ft	4.70	310.20	155.10
PERRY TOTAL			14,310.20	7,155.10
KLEIN REVEGETATION (4.47 acres)				
Mobilization	1 L.S.	2,000.00	447.43	2,000.00
Salvage & Replace Topsoil	940 LCY	1.00	210.29	940.00
Adit Grate Installation	1 Each	750.00	167.79	750.00
Regrade Area	70 LCY	2.00	31.32	140.00
Excavate Check Ditches	165 LCY	5.00	184.56	825.00
Excavate Stream Channel	430 LCY	0.85	81.77	365.50
Lime Placement	1.76 Acres	1,880.00	740.22	3,308.80
Provide Topsoil From Borrow Areas	1,645 LCY	1.75	644.02	2,878.75
Fertilize, Seed & Mulch	4.47 Acres	1,223.00	1,223.00	5,466.81
Farm Fence - Type F-4M	2,288 L. Ft	0.75	383.89	1,716.00
Farm Fence Double Panel	8 Each	90.00	161.07	720.00
Farm Fence Single Panel	8 Each	60.00	107.38	480.00
Farm Fence Gates Type G-2	48 L. Ft	4.70	50.47	225.60
KLEIN REVEGETATION TOTAL			4,433.21	19,816.46

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
JANICH 17 UPPER (0.23 acres)				
Mobilization	1 L.S.	100.00	434.78	100.00
Debris Removal	1 L.S.	30.00	130.43	30.00
Close Mine Openings	1 Each	300.00	1,304.35	300.00
Lime Placement	0.17 Acres	1,880.00	1,389.57	319.60
Fertilize, Seed & Mulch	0.23 Acres	1,223.00	1,223.00	281.29
JANICH 17 UPPER TOTAL			4,482.13	1,030.89
JANICH 17 LOWER (0.166 acres)				
Mobilization	1 L.S.	150.00	903.61	150.00
Debris Removal	1 L.S.	50.00	301.20	50.00
Salvage & Replace Topsoil	40 LCY	1.00	240.96	40.00
Close Mine Openings	2 Each	300.00	3,614.46	600.00
Backfill Subsidence and Collapsed Adit Depressions	90 LCY	2.00	1,084.34	180.00
Lime Placement	0.06 Acres	1,880.00	679.52	112.80
Fertilize, Seed & Mulch	0.166 Acres	1,223.00	1,223.00	203.02
JANICH 17 LOWER TOTAL			8,047.11	1,335.82
JANICH 18 (0.218 acres)				
Mobilization	1 L.S.	250.00	1,146.79	250.00
Salvage & Replace Topsoil	440 LCY	1.00	2,018.35	440.00
Close Mine Openings	1 Each	300.00	1,376.15	300.00
Regrade Area	200 LCY	2.00	1,834.86	400.00
Backfill Subsidence and Collapsed Adit Depressions	150 LCY	2.00	1,376.15	300.00
Lime Placement	0.097 Acres	1,880.00	836.51	182.36
Fertilize, Seed & Mulch	0.218 Acres	1,223.00	1,223.00	266.61
JANICH 18 TOTAL			9,811.79	2,138.97

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
JANICH 20 UPPER (0.22 acres)				
Mobilization	1 L.S.	100.00	454.55	100.00
Debris Removal	1 L.S.	50.00	227.27	50.00
Salvage & Replace Topsoil	40 LCY	1.00	181.82	40.00
Close Mine Openings	2 Each	300.00	2,727.27	600.00
Lime Placement	0.03 Acres	1,880.00	256.36	56.40
Provide Topsoil From Borrow Areas	55 LCY	1.75	437.50	96.25
Fertilize, Seed & Mulch	0.22 Acres	1,223.00	1,223.00	269.06
JANICH 20 UPPER TOTAL			5,507.77	1,211.71
JANICH 20 LOWER (0.75 acres)				
Mobilization	1 L.S.	300.00	400.00	300.00
Debris Removal	1 L.S.	440.00	586.67	440.00
Salvage & Replace Topsoil	160 LCY	1.00	213.33	160.00
Regrade Coal Slack Mat'l	215 LCY	1.00	286.67	215.00
Lime Placement	0.22 Acres	1,880.00	551.47	413.60
Provide Topsoil From Borrow Areas	230 LCY	1.75	536.67	402.50
Fertilize, Seed & Mulch	0.75 Acres	1,223.00	1,223.00	917.25
JANICH 20 LOWER TOTAL			3,797.80	2,848.35

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
JANICH 20 FIRE (0.368 acres)				
Mobilization	1 L.S.	350.00	951.09	350.00
Clearing and Grubbing	1 L.S.	230.00	625.00	230.00
Salvage & Replace Topsoil	180 LCY	1.00	489.13	180.00
Provide Water	5.7 Kgal	25.00	387.23	142.50
Excavate Coal Disposal Area; Strip Overburden From Burning Coal & Stockpile material	465 LCY	1.00	1,263.59	465.00
Excavate & Extinguish Burning Coal	135 LCY	5.00	1,834.24	675.00
Place Overburden from Stockpile & Regrade	465 LCY	1.00	1,263.59	465.00
Lime Placement	0.049 Acres	1,880.00	250.33	92.12
Fertilize, Seed & Mulch	.368 Acres	1,223.00	1,223.00	450.07
JANICH 20 FIRE TOTAL			8,287.20	3,049.69
JANICH 20/29 (0.44 acres)				
Mobilization	1 L.S.	200.00	454.55	200.00
Debris Removal	1 L.S.	60.00	136.36	60.00
Salvage & Replace Topsoil	200 LCY	1.00	454.55	200.00
Close Mine Openings	2 Each	300.00	1,363.64	600.00
Lime Placement	0.105 Acres	1,880.00	448.64	197.40
Provide Topsoil From Borrow Areas	105 LCY	1.75	417.61	183.75
Fertilize, Seed & Mulch	0.44 Acres	1,223.00	1,223.00	538.12
JANICH 20/29 TOTAL			4,498.34	1,979.27

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
JANICH 29 (0.66 acres)				
Mobilization	1 L.S.	800.00	1,212.12	800.00
Provide & Install 24" Diameter CMP Culvert	40 L. Ft	32.50	1,969.70	1,300.00
Debris Removal	1 L.S.	200.00	303.03	200.00
Salvage & Replace Topsoil	1,430 LCY	1.00	2,166.67	1,430.00
Close Mine Openings	1 Each	300.00	454.55	300.00
Excavate and Regrade Stock Pond	710 LCY	1.25	1,344.70	887.50
Backfill Subsidence and Collapsed Adit Depressions	10 LCY	2.00	30.30	20.00
Lime Placement	0.10 Acres	1,880.00	284.85	188.00
Fertilize, Seed & Mulch	0.66 Acres	1,223.00	1,223.00	807.18
Farm Fence - Type F-4M	902 L. Ft	0.75	1,025.00	676.50
Farm Fence Double Panel	8 Each	90.00	1,090.91	720.00
Farm Fence Single Panel	1 Each	60.00	90.91	60.00
Farm Fence Gates Type G-2	16 L. Ft	4.70	113.94	75.20
JANICH 29 TOTAL			11,309.67	7,464.38
SHEPHERD (0.30 acres)				
Mobilization	1 L.S.	1,000.00	333.33	1,000.00
Debris Removal	1 L.S.	20.00	66.67	20.00
Clearing and Grubbing	1 L.S.	230.00	766.67	230.00
Salvage & Replace Topsoil	730 LCY	1.00	2,433.33	730.00
Close Mine Openings	2 Each	300.00	2,000.00	600.00
Regrade Area	170 LCY	2.00	1,133.33	340.00
Blast Down/Excavate Mine Roof	250 LCY	15.00	12,500.00	3,750.00
Backfill Subsidence and Collapsed Adit Depressions	455 LCY	2.00	3,033.33	910.00
Fertilize, Seed & Mulch	0.30 Acres	1,223.00	1,223.00	366.90
Farm Fence - Type F-4M	503 L. Ft	0.75	1,257.50	377.25
Farm Fence Double Panel	6 Each	90.00	1,800.00	540.00
Farm Fence Single Panel	3 Each	60.00	600.00	180.00
Farm Fence Gates Type G-2	16 L. Ft	4.70	250.67	75.20
SHEPHERD TOTAL			30,397.83	9,119.35

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
JANICH 20 NEW ADIT (0.098 acres)				
Mobilization	1 L.S.	250.00	2,551.02	250.00
Debris Removal	1 L.S.	240.00	2,448.98	240.00
Salvage & Replace Topsoil	20 BCY	1.00	204.08	20.00
Close Mine Openings	1 Each	300.00	3,061.22	300.00
Regrade Area	40 BCY	1.25	510.20	50.00
Lime Placement	0.019 Acres	1,880.00	364.49	35.72
Provide Topsoil From Borrow Areas	30 BCY	1.00	306.12	30.00
Fertilize, Seed & Mulch	0.098 Acres	1,223.00	1,222.96	119.85
JANICH 20 NEW ADIT TOTAL			10,669.08	1,045.57
BROWN CHARTER COAL FIRE (0.53 acres)				
Mobilization	1 L.S.	1,000.00	1,886.79	1,000.00
Clearing and Grubbing	0.25 Acres	2,000.00	943.40	500.00
Salvage & Replace Topsoil	600 BCY	1.50	1,698.11	900.00
Provide Water	9.1 Kgal	25.00	429.25	227.50
Regrade Area	120 BCY	1.50	339.62	180.00
Excavate Coal Disposal Area; Strip Overburden From Burning Coal & Stockpile material	820 BCY	1.50	2,320.75	1,230.00
Excavate & Extinguish Burning Coal	490 BCY	5.00	4,622.64	2,450.00
Place Overburden from Stockpile & Regrade	820 BCY	1.50	2,320.75	1,230.00
Lime Placement	0.10 Acres	1,880.00	354.72	188.00
Fertilize, Seed & Mulch	0.53 Acres	1,223.00	1,223.00	648.19
Farm Fence - Type F-4M	812 L. Ft	0.75	1,149.06	609.00
Farm Fence Double Panel	8 Each	90.00	1,358.49	720.00
Farm Fence Single Panel	2 Each	60.00	226.42	120.00
Farm Fence Gates Type G-2	16 L. Ft	4.70	141.89	75.20
BROWN CHARTER COAL FIRE TOTAL			19,014.89	10,077.89

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
BROWN RANCH INCLINE (0.005 acres)				
Blast Down Mine Roof	1 L.S.	1,400.00	280,000.00	1,400.00
BROWN RANCH INCLINE TOTAL			280,000.00	1,400.00
CARLSON COAL FIRE (0.81 acres)				
Mobilization	1 L.S.	1,000.00	1,234.57	1,000.00
Clearing and Grubbing	0.5 Acres	2,000.00	1,234.57	1,000.00
Salvage & Replace Topsoil	820 BCY	2.50	2,530.86	2,050.00
Provide Water	23.9 Kgal	25.00	737.65	597.50
Excavate Coal Disposal Area; Strip Overburden From Burning Coal & Stockpile material	1,363 LCY	2.00	3,364.20	2,725.00
Excavate & Extinguish Burning Coal	785 LCY	5.00	4,845.68	3,925.00
Place Overburden from Stockpile & Regrade	1,363 LCY	2.00	3,364.20	2,725.00
Lime Placement	0.11 Acres	1,880.00	255.31	206.80
Fertilize, Seed & Mulch	0.81 Acres	1,223.00	1,223.00	990.63
Farm Fence - Type F-4M	513 L. Ft	0.75	475.00	384.75
Farm Fence Double Panel	4 Each	90.00	444.44	360.00
Erosion Control Blanket	2,000 Sq Yd	2.25	5,555.56	4,500.00
CARLSON COAL FIRE TOTAL			25,265.04	20,464.68

2. Project Cost Breakdown (Cont.)

Item	Quantity	Cost per Unit	Cost per Acre	Total Cost
WADE #2 COAL FIRE (0.55 acres)				
Mobilization	1 L.S.	2,000.00	3,636.36	2,000.00
Clearing and Grubbing	.33 Acre	2,000.00	1,210.91	666.00
Salvage & Replace Topsoil	752 BCY	1.85	2,530.91	1,392.00
Provide Water	3.2 Kgal	25.00	145.45	80.00
Excavate Coal Disposal Area; Strip Overburden From Burning Coal & Stockpile material	1,852 BCY	3.50	11,785.45	6,482.00
Excavate & Extinguish Burning Coal	860 BCY	5.00	7,818.18	4,300.00
Place Overburden from Stockpile & Regrade	1,852 BCY	1.50	5,050.91	2,778.00
Lime Placement	0.10 Acres	1,880.00	341.82	188.00
Fertilize, Seed & Mulch	0.55 Acres	1,223.00	1,223.00	672.65
Farm Fence - Type F-4M	748 L. Ft	0.75	1,020.00	561.00
Farm Fence Double Panel	5 Each	90.00	818.18	450.00
Farm Fence Single Panel	3 Each	60.00	327.27	180.00
Farm Fence Gates Type G-2	32 L. Ft	4.70	273.45	150.40
Erosion Control Blanket	720 Sq Yd	2.25	2,945.45	1,620.00
WADE #2 COAL FIRE TOTAL			39,127.36	21,520.05
ANTELOPE MAINTENANCE (0.01 acres)				
Mobilization	1 L.S.	300.00	30,000.00	300.00
Regrade Area	1 L.S.	100.00	10,000.00	100.00
Provide & Install 18" Diameter CMP Culvert	40 L. Ft	20.00	80,000.00	800.00
ANTELOPE MAINTENANCE TOTAL		120,000.00	1,200.00	

3. Cost Per Yard

A total of 8,657 cubic yards of topsoil was moved at a lump sum price of $12,353 or $1.43 per yard. A total of 1,055 cubic yards of fill was placed in subsidence holes, shafts, and adit openings and trenches at a lump sum cost of $2,110 or $2.00 per yard. Twelve mine openings were sealed by backfilling at a lump sum price of $3,600 or $300 per opening. One additional adit opening was closed by grate installation at a cost of $750. The roofs over two other adits were collapsed by blasting at a cost of $5,150 or $2,575 per adit.

Coal bank fires were extinguished at four sites. At these sites, 2,270 cubic yards of burning coal were excavated, extinguished and buried at a cost of $11,350 or $5.00 per cubic yard. Unclassified excavation associated with preparing and reclaiming the sites required the movement of 9,000 cubic yards of material at a lump sum cost of $18,100 or $2.01 per cubic yard.

A unit cost of $1,223 per acre was paid to fertilize, seed and mulch reclaimed areas. The project required the neutralization of 2.92 acres of coal slack at a unit cost of $1,880 per treated acre.

V. SUMMARY

A. Completed Reclamation

To the original 90 contract days were added 63 days by change orders, for a total of 153 days allowable. The Contractor completed the sites involved in this project using 152 calendar days, or 99% of the total allowed.

Eleven new mine project sites, two previously addressed mine sites, and four coal seam fires for a total of seventeen project sites in the Bull Mountains were dealt with. The mine sites revealed open adits, subsidence features, coal slack piles, and debris. All but one of the adits were closed with earth plugs; the other was blocked with a grate. Coal slack areas were regraded in place to match the topography, buried, and revegetated. The coal seam fires were all treated alike. Overburden was removed from the burning coal, the coal was removed to a disposal site, extinguished, and buried. The overburden was then placed back, and the disturbance are revegetated.

Most of the terrain was gently rolling, so it was possible to revegetate with a drill seeder and to mulch by crimping grass hay. This is the preferred choice, if conditions permit, because of the observed success rates. Where terrain did not lend itself to this method, hydroseeding and hydromulching, or hydroseeding and erosion control blanket, were employed.

B. Comments

The planning for this project started in 1987, the plans were ready in early 1988, construction started in the fall of 1988, and the project was finished in the fall of 1989. The project seemed to go smoothly from beginning to end in that no single problem stands out as being difficult beyond the norm. Willie E. Baxter Construction did very good reclamation work on these projects. His superintendent, Ed Baxter, was very agreeable with the site plans, and followed them. The engineers and the AMRB have reason to be more than pleased with his efforts.

With regards to coal seam fires, various methods have reportedly been tried, with varied success. One method suggested to us was to place shotcrete over the coal seam fire area. We rejected this idea if favor of using an earthwork approach. Both methods cost about the same amount of dollars. However, we thought that shotcrete would probably not be successful in snuffing the fire, because it would not be able to completely deny oxygen to the fire. Furthermore, even if the fire were to go out, the shotcrete would still be there. This was thought to be less pleasing aesthetically and environmentally.

C. Recommendations

To the date of this writing, a final inspection of several project sites has not been completed. Immediately following project completion, snow covered the site making visual examination impossible. This final detail of the project should be completed as soon as reasonable possible.

There is an infestation of spotted knapweed at the Antelope Mine site. It is thought that the previous AML work at the site contributed to this situation. It had been previously agreed verbally to have the Musselshell County Weed Control office spray the site for knapweed. The contact person at that office is Mr. Hougardy at phone 406/323-2704. This task should be done early during the upcoming spring.

APPENDIX A

SLIDE DESCRIPTIONS

BY PROJECT

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

EQUIPMENT

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
1	11/22/88	Homemade crimper.
2	11/22/88	Hand fertilizer spreader.
3	11/09/89	Hay chopper.
4	05/03/89	International water truck (1600 gallon).
5	11/22/88	Ford dump truck and water tank.
6	05/05/89	JD 755 track loader.
7	10/26/89	JD 690 B track backhoe.
8	11/22/89	Kirshman drill seeder.
9	11/22/89	Self-tipping trailer.
10	04/25/89	Michigan 110 scraper.
11	11/22/88	580 Case backhoe and loader.
12	11/28/88	Hydraulic post hole auger.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

KLEIN REVEGETATION

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
13	07/20/89	Pre-construction coal slack area looking east.
14	07/20/89	Pre-construction coal slack area looking west.
15	07/21/89	Drag used to knock down weeds on coal slack area.
16	07/21/89	Unloading lime on coal slack pile.
17	07/24/89	Spreading lime on coal slack area.
18	11/19/89	Hay on flat area looking east.
19	11/19/89	Hay on flat area looking west.
20	07/25/89	Fence complete east end with gate on flat area.
21	07/25/89	Fence complete looking west on flat area.
22	07/20/89	Pre-construction waste pile area.
23	11/19/89	Crimped hay into waste pile area.
24	11/19/89	Waste area with crimped-in hay.
25	07/20/89	Powder magazine entrance.
26	07/20/89	Digging footings for grate with jackhammer.
27	07/21/89	Grate in place with footings poured.
28	07/20/89	Pre-construction of borrow area.
29	10/16/89	Topsoil borrow area.
30	10/24/89	Drilling holes for steel fence. Post-topsoil borrow area.
31	11/09/89	Hay on borrow area.
32	11/09/89	Crimping and spreading hay on borrow area.
33	11/19/89	Crimped-in hay borrow area.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

KLEIN REVEGETATION (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
34	11/19/89	Borrow area with hay crimped in.
35	07/20/89	Headcut channel area pre-construction.
36	10/16/89	Channel area regraded.
37	11/21/89	Hydro mulch on channel area.
38	07/20/89	Pre-construction hillside revegetation area.
39	10/18/89	Ditch on hillside revegetation area.
40	10/16/89	Topsoil for hillside revegetation area.
41	10-19-89	Hillside revegetation area regraded.
42	11/21/89	Hillside revegetation area hydro mulched.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

PERRY

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
43	11/22/88	Pre-construction borrow area.
44	11/22/88	Pre-construction SP-1.
45	11/22/88	Pre-construction trench caving SP-1.
46	11/23/88	SP-1 backfilled prior to topsoil.
47	12/01/88	Wheat hay on trailer - 30 bales.
48	11/22/88	Pre-construction SP-2.
49	11/23/88	Removing topsoil from SP-2.
50	11/23/88	Excavating overhang SP-2.
51	11/23/88	Water and backfill SP-2.
52	11/22/88	Pre-construction SP-3.
53	11/23/88	Excavation overhang SP-3.
54	11/23/88	Water and compaction SP-3 overhang area.
55	11/23/88	SP-3 partial backfill.
56	11/22/88	Pre-construction adit trench.
57	11/30/88	Topsoil from adit trench.
58	12/01/88	Adit trench prior or topsoil.
59	11/22/88	Pre-construction coal slack pile.
60	12/01/88	Coal slack area prior to topsoil.
61	11/22/88	Pre-construction overall view.
62	12/01/88	Overall view during topsoiling.
63	12/01/88	Overall view after topsoil and dressing.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

PERRY (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
64	12/02/88	Close up of crimped area.
65	12/02/88	Overall view of area after mulch crimped.
66	11/23/88	Setting anchor in back stop.
67	12/02/88	Weighing seed.
68	12/02/88	Seed in drill bin.
69	12/02/88	Pulling seed drill with 580 Case backhoe.
70	12/02/88	Crimper on 580 Case front-end loader bucket.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH UPPER 17

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OF COMMENTS
71	05/30/89	Coal slack pile 1 prior to reclamation.
72	06/01/89	Reclaimed coal slack area 1.
73	05/30/89	Coal slack areas 2 and 4 prior to reclamation.
74	06/01/89	Reclaimed coal slack piles 2 and 4.
75	05/31/89	Hand crimping mulch.
76	05/31/89	Mulch after being hand crimped.
77	05/30/89	Coal slack pile 3 prior to reclamation.
78	05/30/89	Regrading coal slack pile 3.
79	05/30/89	Spreading lime by hand.
80	05/30/89	Mixing lime with coal slack.
81	05/30/89	Adit 1 prior to reclamation.
82	05/30/89	Sealing Adit 1.
83	05/30/89	Rocking face of sealed adit.
84	05/31/89	Spreading mulch in Adit 1 area.
85	05/31/89	Reclaimed adit area.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH LOWER 17

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
86	05/30/89	Adit 1 prior to reclamation.
87	05/30/89	Sealing Adit 1.
88	05/30/89	Rebuilding Adit 1 slope.
89	05/31/89	Spreading mulch on Adit 1 area.
90	05/31/89	Crimping mulch on Adit 1 area.
91	05/31/89	Reclaimed Adit 1 area.
92	05/30/89	Adit 2 prior to reclamation.
93	05/30/89	Sealing Adit 2.
94	05/31/89	Reclaimed Adit 2 area.
95	05/30/89	Metal debris.
96	05/30/89	Borrow site prior to reclamation.
97	05/30/89	Regrading borrow area.
98	05/31/89	Seeding borrow area.
99	05/31/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 18

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
100	05/25/89	Site prior to reclamation.
101	05/30/89	Burning debris.
102	05/25/89	Sinkhole prior to reclamation.
103	05/25/89	Adit prior to reclamation.
104	05/25/89	Stripping topsoil from adit depression.
105	05/25/89	Sealing adit.
106	05/25/89	Backfilling adit depression.
107	05/25/89	Liming coal slack.
108	05/25/89	Mixing lime with coal slack.
109	05/25/89	Topsoiling site.
110	05/31/89	Spreading mulch.
111	05/31/89	Crimping mulch.
112	05/31/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 20 UPPER

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
113	05/03/89	Debris south of coal slack pile.
114	05/03/89	Debris between coal slack pile and Adit 1.
115	05/03/89	Debris between coal slack pile and Adit 1.
116	05/03/89	Pre-construction of Adit 1.
117	05/03/89	Pre-construction of shaft 1.
118	05/03/89	Burning of debris.
119	05/03/89	Topsoil on coal slack pile 1.
120	05/25/89	Preparing haul road for seeding.
121	05/25/89	Fertilizing site.
122	05/25/89	Seeding site.
123	05/30/89	Reclaimed shaft area.
124	05/30/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 20 LOWER

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
125	05/04/89	Building haul road.
126	05/04/89	Pre-construction coal slack pile.
127	05/04/89	Debris pile.
128	05/04/89	Removing debris.
129	05/04/89	Burning debris.
130	05/05/89	Spreading lime.
131	05/05/89	Working lime in with JD loader.
132	05/05/89	Hauling topsoil with JD loader.
133	05/23/89	Regrading access road.
134	05-23-89	Drill seeding site.
135	05/23/89	Fertilizing site.
136	05/23/89	Spreading mulch by hand.
137	05/23/89	Crimping mulch.
138	05/24/89	Reclaimed borrow area.
139	05/24/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 20 NEW

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
140	05/03/89	Adit at site.
141	05/03/89	Coal slack and rock wall.
142	05/18/89	Removing debris from adit.
143	05/18/89	Demolishing retaining wall.
144	05/18/89	Sealing adit.
145	05/24/89	Backfilling adit depression.
146	05/24/89	Spreading lime by hand.
147	05/24/89	Mixing lime with coal slack.
148	05/24/89	Topsoiling site.
149	05/25/89	Fertilizing site.
150	05/25/89	Seeding site.
151	05/25/89	Spreading mulch.
152	05/25/89	Crimping mulch.
153	05/25/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 20 FIRE

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
154	05/04/89	Pre-construction burning coal seam.
155	05/04/89	Pre-construction burning coal seam.
156	05/09/89	Cutting road into site.
157	05/09/89	Site prior to burning coal excavation.
158	05/11/89	Burning debris.
159	05/09/89	Digging coal disposal pit.
160	05/09/89	Excavating burning coal.
161	05/09/89	Extinguishing burning coal.
162	05/11/89	Liming extinguishing coal in pit.
163	05/10/89	Rebuilding slope from which coal was excavated.
164	05/11/89	Burying disposal pit with subsoil.
165	05/11/89	Topsoiling site.
166	05/22/89	Regrading assess road.
167	05/22/89	Drill seeding access road.
168	05/22/89	Drill seeding site.
169	05/22/89	Hand fertilizing site.
170	05/22/89	Spreading mulch by hand.
171	05/22/89	Crimping mulch.
172	05/22/89	Reclaimed site.
173	05/22/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 20/29

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
174	05/18/89	Adit 1 prior to reclamation.
175	05/18/89	Removing timbers from Adit 1.
176	05/18/89	Burning debris.
177	05/18/89	Sealing Adit 1 by hand.
178	05/18/89	Sealed Adit 1.
179	05/18/89	Adit 2 prior to reclamation.
180	05/18/89	Sealing Adit 2.
181	05/18/89	Topsoiling Adit 2 area.
182	05/18/89	Spreading lime by hand.
183	05/18/89	Topsoiling limed coal slack.
184	05/20/89	Fertilizing site.
185	05/20/89	Broadcast seeding site.
186	05/20/89	Spreading mulch by hand.
187	05/20/89	Crimping mulch.
188	05/20/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 29

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
189	04/19/89	Pre-construction with scraper.
190	04/24/89	Excavating of new pond.
191	04/24/89	Excavated pond.
192	04/24/89	Working in lime.
193	04/25/89	Topsoiling site with scraper.
194	04/25/89	Topsoiling with backhoe.
195	04/25/89	Site after topsoiling.
196	04/25/89	Hand fertilizing site.
197	04/25/89	Drill seeding site.
198	05/02/89	Spreading mulch.
199	05/02/89	Spreading mulch.
200	05/02/89	Crimped mulch.
201	05/02/89	Crimping site.
202	05/02/89	Crimped mulch.
203	05/02/89	Mulched site.
204	05/02/89	Corner double panel.
205	05/02/89	Working fence.
206	05/02/89	Fence gate with closure.
207	05/02/89	Stringing barbwire.
208	05/02/89	Barbwire tag.
209	05/02/89	Project sign.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

JANICH 29 (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
210	05/06/89	Culvert site.
211	05/06/89	Culvert laid in trench.
212	05/06/89	Installed culvert.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

SHEPHERD

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
213	06/06/89	Borrow area prior to reclamation.
214	06/06/89	Stripping topsoil from site.
215	06/09/89	Excavating fire disposal pit.
216	06/06/89	SP-1 prior to reclamation.
217	06/06/89	Excavating between Adit 2 and SP-1.
218	06/08/89	Reclaimed Adit 1 area.
219	06/06/89	Backfilling SP-1.
220	06/06/89	Backfilling excavation between Adit 2 and SP-1.
221	06/06/89	Adit 2 prior to reclamation.
222	06/06/89	Adit 2 prior to reclamation.
223	06/06/89	SP-2 prior to reclamation.
224	06/06/89	Excavating between Adit 2 and SP-2.
225	06/07/89	Backfilling/regrading SP-2 area.
226	06/06/89	SP-3 prior to reclamation.
227	06/06/89	Backfilling SP-3.
228	06/06/89	SP-4 prior to excavation.
229	06/06/89	Backfilling SP-4.
230	06/06/89	SP-5.
231	06/07/89	Topsoiling site.
232	06/08/89	Drill seeding site.
233	06/08/89	Spreading mulch.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

SHEPHERD (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
234	06/06/89	Boring holes for double panel.
235	06/06/89	Setting post for double panel.
236	06/07/89	Wiring double panels.
237	06/08/89	Finished gate.
238	06/07/89	Erecting fence.
239	06/08/89	Reclaimed site.
240	06/08/89	Reclaimed site.
241	06/08/89	Reclaimed site.
242	06/08/89	Reclaimed site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

CARLSON COAL FIRE

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
243	06/20/89	Constructing temporary gate.
244	06/20/89	Coal bank prior to reclamation.
245	06/20/89	Coal bank prior to reclamation.
246	06/20/89	Disposal pit area prior to construction.
247	06/20/89	Haul road area prior to reclamation.
248	06/20/89	Building haul road for burning coal disposal.
249	06/20/89	Clearing logs from haul road.
250	06/20/89	Constructing haul road.
251	06/22/89	Excavating coal fire overburden.
252	06/23/89	Stripping topsoil from disposal.
253	06/23/89	Excavating coal disposal pit.
254	06/23/89	Excavating coal seam overburden.
255	06/26/89	Excavating burning coal.
256	06/23/89	Placing burning coal in disposal pit.
257	06/26/89	Clearing trees from coal fire area.
258	06/29/89	Coal seam and loader.
259	06/29/89	Coal seam.
260	06/29/89	Loader digging disposal pit 2.
261	06/29/89	Spreading lime on disposal pit 1.
262	06/29/89	Disposal pit 2.
263	06/30/89	Burning coal seam.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

CARLSON COAL FIRE (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
264	06/30/89	Watering down hot coal seam.
265	07/05/89	Excavation to date.
266	07/05/89	Making dam for water source.
267	07/06/89	Checking coal seam for hot spots.
268	07/06/89	Majority of coal seam excavation.
269	07/07/89	End of coal seam excavation.
270	06/22/89	Excavating holes for double panel.
271	10/26/89	Fire area in October.
272	10/26/89	Burning coal.
273	10/27/89	End coal seam.
274	11/02/89	Laying erosion blanket.
275	11/06/89	Erosion blanket on access road.
276	11/06/89	Erosion blanket on regrade slopes.
277	11/06/89	Spreading hay on disposal pit area.
278	11/06/89	Crimping hay into disposal pit area.
279	11/02/89	Small dam for Carlson Ranch.
280	11/20/89	Culvert in ditch at Antelope Mine site.
281	11/20/89	Rock drain pad for culvert at Antelope Mine site.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

WADE COAL FIRE #2

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
282	07/27/89	Pre-construction coal fire bank.
283	07/27/89	Removing topsoil from disposal pit.
284	07/27/89	Building access down to coal fire.
285	07/27/89	Disposal pit.
286	07/27/89	Removing overburden from coal fire pit.
287	07/27/89	Watering down coal fire in pit.
288	07/27/89	Watering down coal fire in pit.
289	07/27/89	Coal fire bank after most of coal fire removed.
290	08/04/89	Disposal pit after backfilling.
291	08/04/89	Disposal pit after subsoil backfill.
292	08/04/89	Coal bank area after backfill.
293	08/04/89	Coal seam bank after backfill.
294	08/04/89	Water hole in Cow Creek.
295	08/08/89	Fencing complete.
296	08/08/89	Fencing complete.
297	10/12/89	JD 755 spreading topsoil.
298	10/12/89	Laying erosion blanket.
299	10/12/89	Erosion blanket on coal bank slope.
300	10/12/89	Spreading hay.
301	10/12/89	Loose hay spread over area.
302	10/13/89	Crimping hay with 580 Case.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

WADE COAL FIRE #2 (Cont.)

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
303	10/13/89	Crimping hay with 580 Case.
304	10/13/89	Hay crimped.
305	10/13/89	View of site after completion.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

BROWN/CHARTER COAL FIRE

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
306	06/09/89	Site prior to reclamation.
307	06/09/89	Site prior to reclamation.
308	06/09/89	Site prior to reclamation.
309	06/09/89	Clearing and grubbing site.
310	06/09/89	Stripping topsoil from above coal seam.
311	06/09/89	Digging sump for water.
312	06/09/89	Removing overburden from coal seam.
313	06/12/89	Excavating burning coal.
314	06/12/89	Extinguishing burning coal in pit.
315	06/13/89	Disposal pit nearly full of coal.
316	06/13/89	Rebuilding excavated coal slope.
317	06/13/89	Liming coal disposal pit.
318	06/14/89	Placing subsoil over disposal pit.
319	06/14/89	Topsoiling disposal pit.
320	06/14/89	Regrading drainage area.
321	06/14/89	Drill seeding site.
322	06/14/89	Mulching site.
323	06/15/89	Reclaimed dozer cut.
324	06/15/89	Reclaimed coal band area.
325	06/15/89	Reclaimed disposal pit area.
326	06/13/89	Drilling holes for double panel.

MUSSELSHELL - YELLOWSTONE 88
SLIDE DESCRIPTION

BROWN/CHARTER COAL FIRE (Cont.)

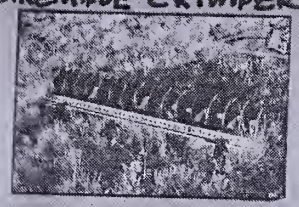
ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
327	06/15/89	Erecting fence.
328	06/14/89	Building double panel.

BROWN RANCH INCLINE

329	08/08/89	Pre-construction of site.
330	08/08/89	Placing charge.
331	08/08/89	After first blast.
332	08/08/89	After second blast.
333	08/08/89	After third blast.

PERRY 11-22-88

HOMEMADE CRIMPER

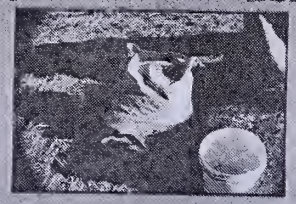


1

MUSSELSHELL/Yellow

PERRY 11-22-88

HAND OPERATED FERT. SPREADER

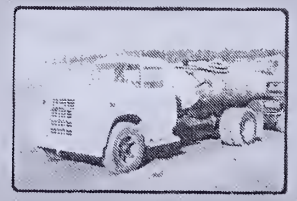


2

Yellowstone/Musselshell

3

1600 gal water truck
JANICH upper #20

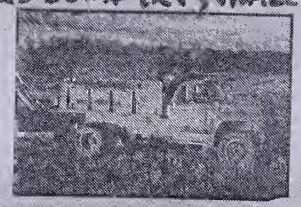


5-3-89
MAY 89

4

PERRY 11-22-88

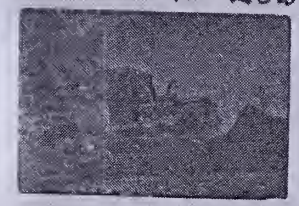
FORD DUMP TRK & WATER TK



5

MUSSELSHELL/Yellow

Working Coal Slack
with Track Hoader
JANICH #20 Lower



5/5/89
MAY 89

6

JD 690 B
Track Backhoe

10-26-89
OCT 89

7

PERRY 11-22-88

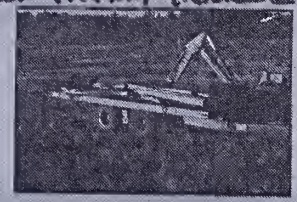
KIRSHMAN II ROLO SEEDER

8

MUSSELSHELL/Yellow

PERRY 11-22-88

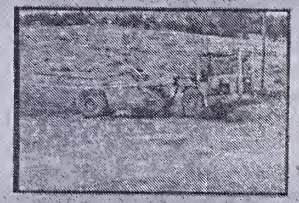
SELF TIPPING TRAILER



9

Musselshell/Yellowstone

Janich 24 4-24-1989
Topsoiling
Site with Scraper



10

Musselshell/Yellowstone

PERRY 11-22-88

580 CASE BK HOE LOADER

11

Musselshell/Yellow

PERRY Hydraulic Post Hole Auger 11-28-88

12

Musselshell/
Yellowstone 89

MUSSELSHELL-YELLOWSTONE 88
PRE-CONST.
COAL SLACK AREA EAST →

7-20-89
13
KLEIN REVEG.

MUSSELSHELL-YELLOWSTONE 88
PRE-CONST.
COAL SLACK AREA WEST →

7-20-89
14
KLEIN REVEG.

MUSSELSHELL-YELLOWSTONE 88
DRAG USED TO
KNOCK DOWN WEEDS.

7-21-89
15
KLEIN REVEG.

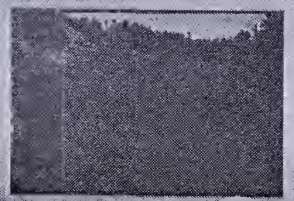
MUSSELSHELL-YELLOWSTONE 88
UNLOADING
LIME ON COAL SLACK PILE

7-24-89
16
KLEIN REVEG.

MUSSELSHELL-YELLOWSTONE 88
SPREADING LIME

7-24-89
17
KLEIN REVEG.

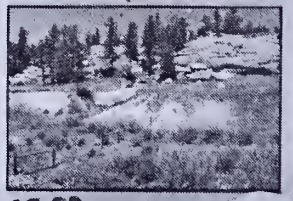
LOOKING EAST



18

19

MUSSELSHELL-YELLOWSTONE 88
FENCE COMP.
EAST END W/ GATE



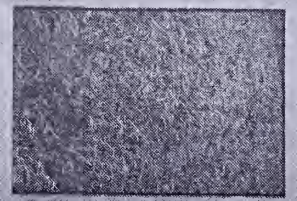
7-25-89
20
KLEIN REVEG.

MUSSELSHELL-YELLOWSTONE 88
FENCE COMP.
LOOKING WEST

7-25-89
21
KLEIN REVEG.

MUSSELSHELL YELLOWSTONE 88
PRE-CONST
WASTE PILE AREA

7-20-89
22
KLEIN REVEG.



23

24

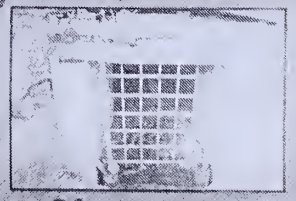
POWDER ROOM
ENTRANCE

KLEIN
7-20-89
MUSSELSHELL/YCH 88
25

MUSSELSHELL-YELLOWSTONE 88
DIGGING FOOTINGS
FOR GRATE - JACK HAMMER

7-20-89
26
KLEIN REVEG.

MUSSELSHELL-YELLOWSTONE 88
GRATE IN PLACE
W/ FOOTING POURED



7-21-89
27
KLEIN REVEG.

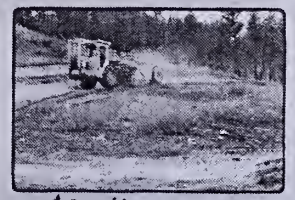
MUSSELSHELL, YELLOWSTONE
RG-const BORROW AREA

7-20-89

28

KLEIN REVEG.

Top Soil Borrow
Area Klein site



10-16-89

68 100

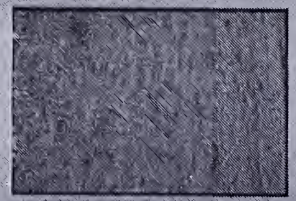
29

Drilling Holes for
Fence Post
Top soil Borrow Area

10-24-89

68 100

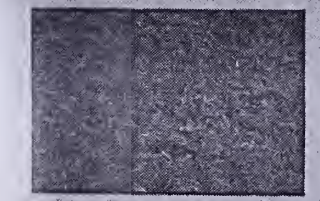
30



11-9-89

31

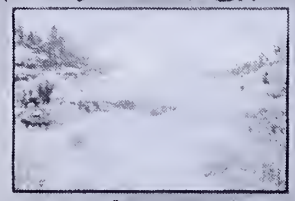
32



33

34

MUSSELSHELL YELLOWSTONE BS
PRE-CONST.
HERDCUT AREA



7-20-89

KLEIN REVEG.

35

CHANNEL AREA
Regraded
Klein Area

10-16-89

68 100

36

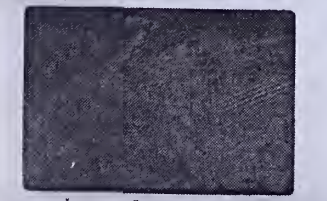
37

Hillside REVEG
AREA

KLEIN
7-20-89
MUSSELSHELL/YELL-BS

38

Ditch on Reveg.
Area
Klein site



10-18-89

68 100

39

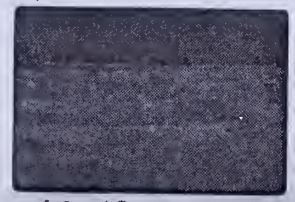
Top Soil from Regrade
& Revegetation Area
Klein site

40

10-16-89

68 100

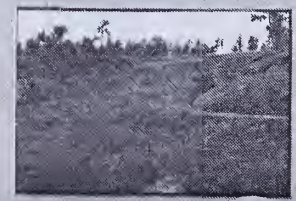
Hillside Regrade
Area
Klein site



10-19-89

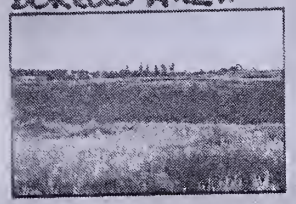
68 100

41



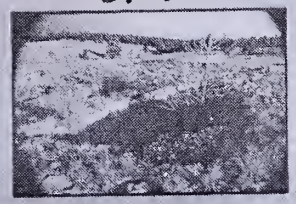
42

PERRY 11-22-88
PRE-CONST
BORROW AREA



MUSSELSHELL / YELLOW 43

PERRY 11-22-88
PRE-CONST.
SP-1

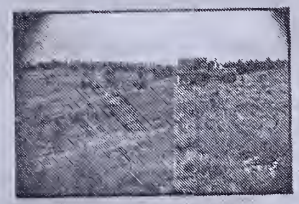


MUSSELSHELL / YELLOW 44

PERRY 11-22-88
PRE-CONST.
TRENCH CAVING SP-1

MUSSELSHELL / YELLOW 45

PERRY SP1 BACKFILLED 11-23-88
FROM TO TOPSOIL

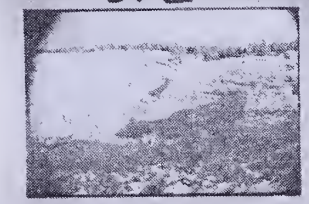


MUSSELSHELL / YELLOWST 46

PERRY 12-1-88
WHEAT HAY
ON TRAILER SO BALES

MUSSELSHELL / YELLOWST 47

PERRY 11-22-88
PRE-CONST
SP-2



MUSSELSHELL / YELLOW 48

PERRY 11-23-88
REMOVING TOPSOIL
FROM SP-2

MUSSELSHELL / YELLOW 49

PERRY EXCAVATING OVERBURDEN 11-23-88
SP-2

MUSSELSHELL
YELLOWSTONE 88 50

PERRY WATER & BACKFILL 11-23-88
SP-2

MUSSELSHELL / YELLOWSTONE 51

PERRY 11-22-88
PRE-CONST.
SP-3

MUSSELSHELL / YELLOWST 52

PERRY EXCAVATION OF OVERBURDEN SP-3 11-23-88

MUSSELSHELL
YELLOWSTONE 88 53

PERRY WATER & COMPACTION
SP-3 OVERBURDEN BACK

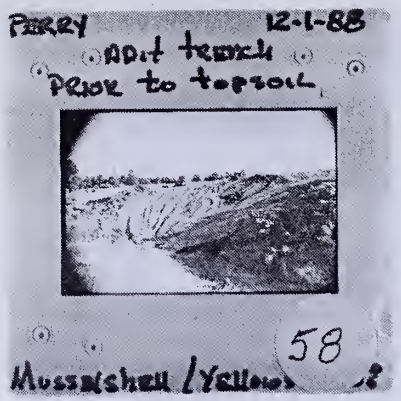
11-23-88
MUSSELSHELL / YELLOWSTONE 88 54

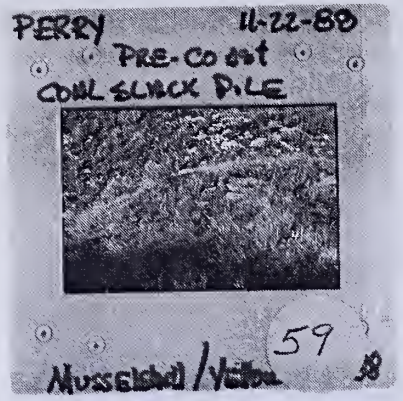
PERRY 11-23-88
SP-3 PARTIAL
BACK FILL

MUSSELSHELL / YELLOWSTO 55

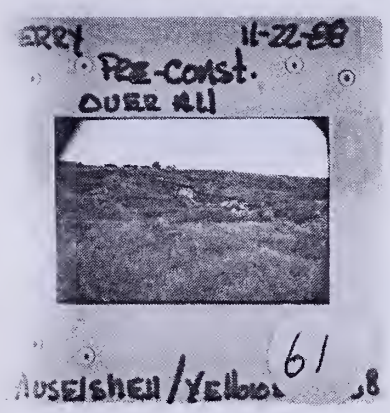
PERRY 11-22-88
PRE-Const
ADit TRENCH
56
Mussellshell / Yellow

PERRY TOPSOIL FROM 11-23-88
ADit TRENCH
57
MUSSELSHELL
YELLOWSTONE 88


PERRY 12-1-88
ADit trench
PRIOR to topsoil
58
Mussellshell / Yellow

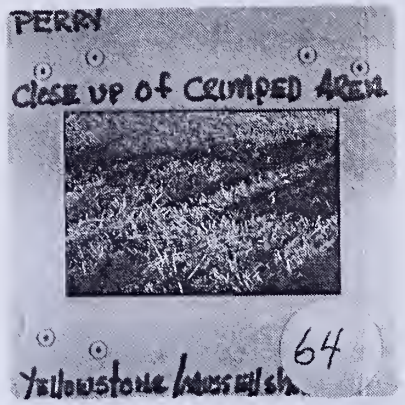

PERRY 11-22-88
PRE-Co ast
COAL SLACK PILE
59
Mussellshell / Yellow

PERRY 12-1-88
COAL SLACK
AREA PRIOR to topsoil
60
Mussellshell / Yellowst

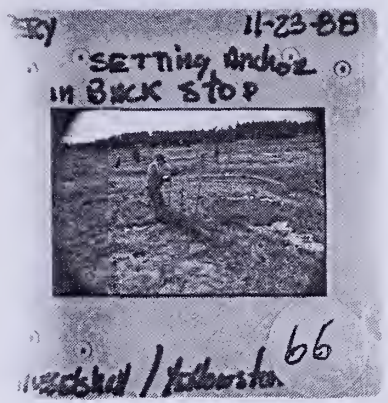

ERRY 11-22-88
PRE-CONST.
OVER ALL
61
MUSSELSHELL / YELLOW

PERRY 12-1-88
OVER ALL
during Topsoiling
62
MUSSELSHELL / Yellowst.

PERRY 12-1-88
OVER ALL
After topsoil & dressing
63
MUSSELSHELL / YELLOW

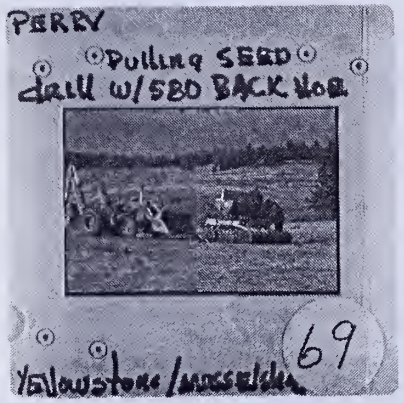

PERRY
CLOSE UP OF CRIMPED AREA
64
YELLOWSTONE / MUSSELSH

PERRY
OVERALL OF
AREA AFTER MULCH CRIMPER
65
YELLOWSTONE / MUSSELL


ERY 11-23-88
SETTING Anchor
in BACK STOP
66
Mussellshell / Yellowstone

PERRY
WEIGHING SEED
67
YELLOWSTONE / MUSSELSHELL 88

PERRY
SEED IN DRILL BOX
68
YELLOWSTONE / MUSSELSHELL


PERRY
Pulling SEED
drill w/ SEED BACK HOE
69
YELLOWSTONE / MUSSELSHELL

PERRY
CRIMPER ON
SEED FRONT-END LOADER BUCKET
70
YELLOWSTONE / MUSSELSHELL

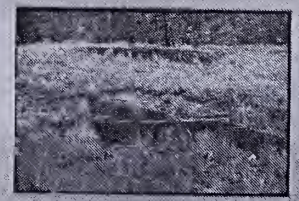
Janich 17 5-30-1989
Coal Slack Pile 1 Prior to Reclamation

71

Janich 17 6-1-1989
Upper
Reclaimed Coal Slack Area 1

72

Janich 17 5-30-1989
Upper
Coal Slack area(s) 2 and 4 prior to Rec.



73

Janich 17 6-1-1989
Upper
Reclaimed Coal Slack Piles 2 + 4

74

Janich 17 5-31-1989
Upper
Hand crimping mulch

75

Janich 17 5-31-1989
Upper
Mulch after Being Hand crimped

76

Janich 17 5-30-1989
Upper
Coal Slack Pile 3 Prior to Reclamation

77

Janich 17 5-30-1989
Upper
Regrading Coal Slack Pile 3

78

Janich 17 5-30-1989
Upper
Spreading Lime By Hand

79

Janich 17 5-30-1989
Upper
mixing lime with coal slack

80

Janich 17 5-30-1989
Adit 1 Prior to Reclamation

81

Janich 17 5-30-1989
Upper
Sealing Adit 1

82

Janich 17 5-30-1989
Upper
Raking Face of sealed Adit

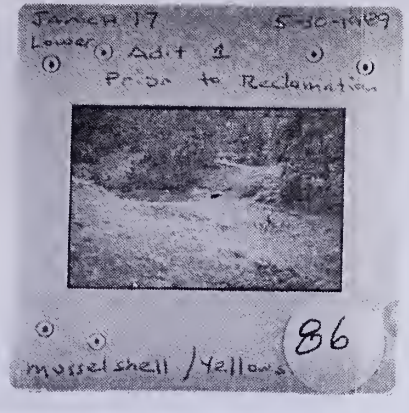
83

Janich 17 5-31-1989
Upper
Spreading mulch - adit 1 area

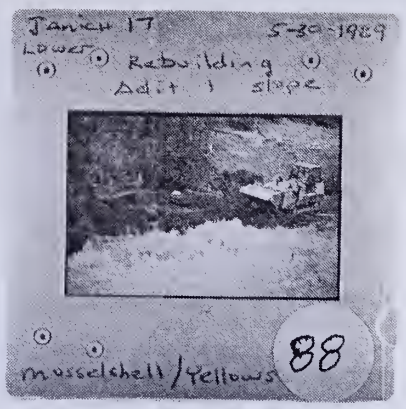
84

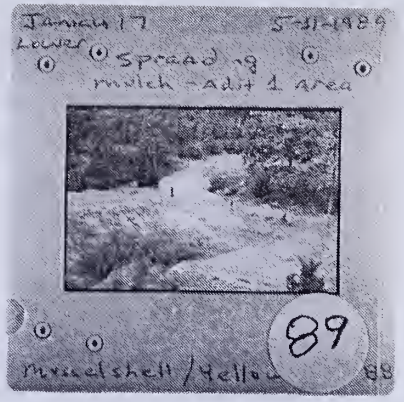
Janich 17 5-31-1989
Upper
Reclaimed Adit Area

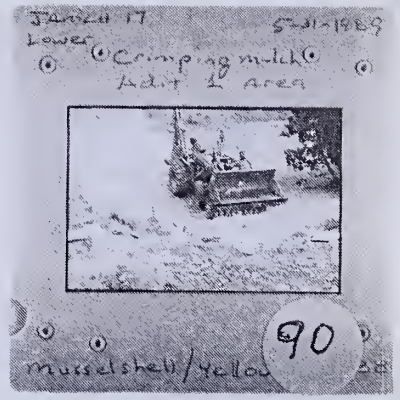
85

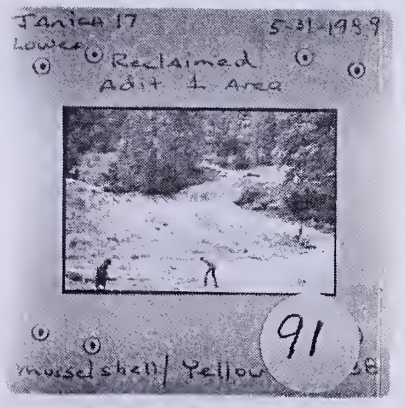

Janich 17
5-30-1989
Lower
Adit 1
Prior to Reclamation
86
Musselshell / Yellows

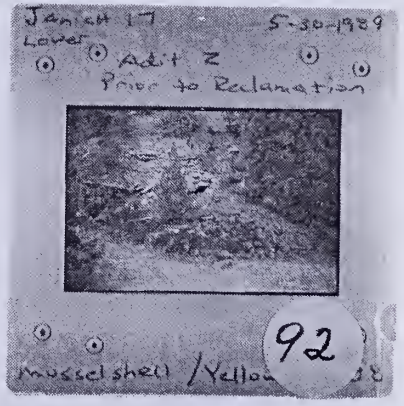
Janich 17
5-30-1989
Lower
Sealing Adit 1
87
Musselshell / Yellow


Janich 17
5-30-1989
Lower
Rebuilding
Adit 1 slope
88
Musselshell / Yellows

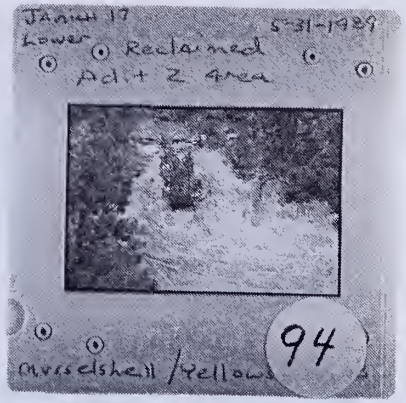

Janich 17
5-31-1989
Lower
Spreading
mulch - Adit 1 area
89
Musselshell / Yellow


Janich 17
5-31-1989
Lower
Crimping mulch
Adit 1 area
90
Musselshell / Yellow

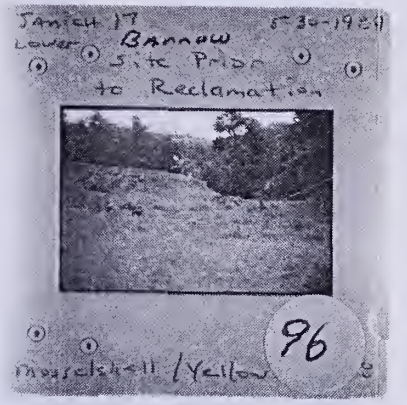

Janich 17
5-31-1989
Lower
Reclaimed
Adit 1 Area
91
Musselshell / Yellow

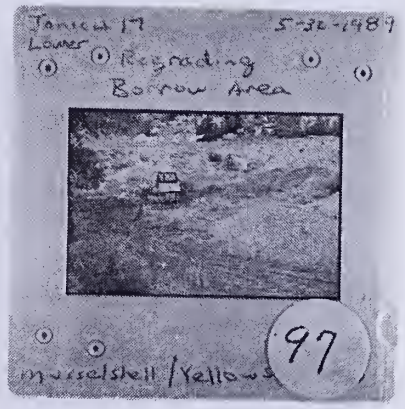

Janich 17
5-30-1989
Lower
Adit 2
Prior to Reclamation
92
Musselshell / Yellow

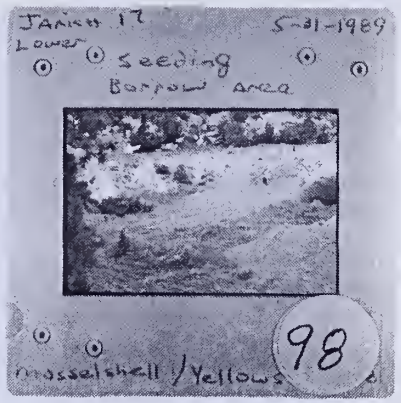
Janich 17
5-30-1989
Lower
Sealing
Adit 2
93
Musselshell / Yellow

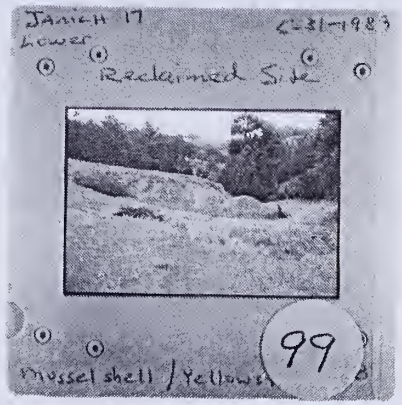

Janich 17
5-31-1989
Lower
Reclaimed
Adit 2 area
94
Musselshell / Yellows

Janich 17
5-30-1989
Lower
Metal Debris
95
Musselshell / Yellows


Janich 17
5-30-1989
Lower
Barrow
Site Prior
to Reclamation
96
Musselshell / Yellow


Janich 17
5-30-1989
Lower
Regrading
Borrow Area
97
Musselshell / Yellows


Janich 17
5-31-1989
Lower
Seeding
Borrow Area
98
Musselshell / Yellows

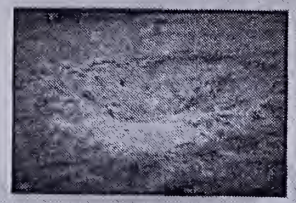

Janich 17
5-31-1989
Lower
Reclaimed Site
99
Musselshell / Yellows

JAnich 18 5-25-1989
Site Prior to Reclamation

100
Musselshell / Yellow

JAnich 18 5-30-1989
Burning Debris

101
Musselshell / Yellow

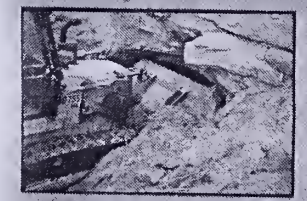
JAnich 18 5-25-1989
Sinkhole Prior to reclamation

102
Musselshell / Yellow

JAnich 18 5-25-1989
Adit Prior to Reclamation

103
Musselshell / Yellow

JAnich 18 5-25-1989
Stripping topsoil From Adit Depression

104
Musselshell / Yellow

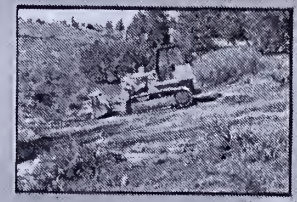
JAnich 18 5-25-1989
Sealing Adit

105
Musselshell / Yellow

JAnich 18 5-25-1989
Backfilling Adit Depression

106
Musselshell / Yellow

JAnich 18 5-25-1989
Liming coal slack

107
Musselshell / Yellow

JAnich 18 5-25-1989
mixing Lime with coal slack

108
Musselshell / Yellow

JAnich 18 5-25-1989
Topsoiling Site

109
Musselshell / Yellow

JAnich 18 5-31-1989
Spreading mulch

110
Musselshell / Yellow

JAnich 18 5-31-1989
Crimping mulch

111
Musselshell / Yellow

JAnich 18 5-31-1989
Reclaimed Site

112
Musselshell / Yellow

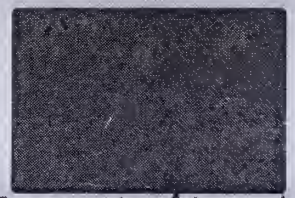
Debris South of Coal Slack pile JANich Upper #20

5-3-89 113

Debris Between Coal Slack pile & Adit #1

JANich Upper #20 5-3-89 114

Debris Between Coal Slack pile & Adit #1



JANich Upper #20 5-3-89 115

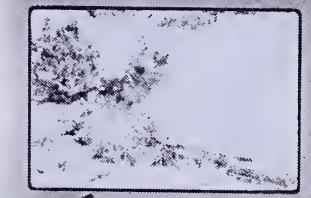
Adit #1 JANich Upper #20

5-3-89 116

Shaft #1 JANich Upper #20

5-3-89 117

Burning Debris JANich Upper #20



5-3-89 118

Top Soil on Coal Slack pile #1 JANich Upper #20

5-3-89 119

JANich 20 Upper 5-25-1989 Preparing Haul Road for Seeding

Mussel shell / Yellow 120

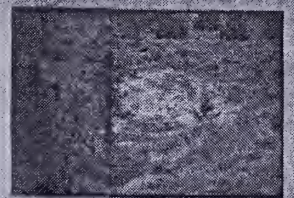
JANich 20 Upper 5-25-1989 Fertilizing Site

Mussel shell / Yellow 121

JANich 20 Upper 5-25-1989 Seeding Site

Mussel shell / Yellow 122

JANich 20 5-30-1989 Reclaimed Shaft Area



Mussel shell / Yellow 123

JANich 20 Upper 5-30-1989 Reclaimed Site

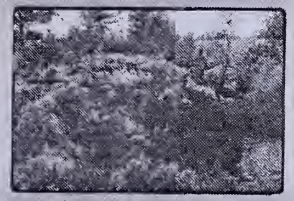
Mussel shell / Yellow 124

Building HAUL Road JANich Lower #20

5-4-89 125

MAY 89

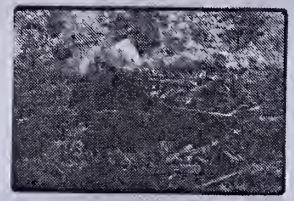
COAL SLACK pile JANich Lower #20



5-4-89 126

MAY 89

Debris pile JANich Lower #20



5-4-89 127

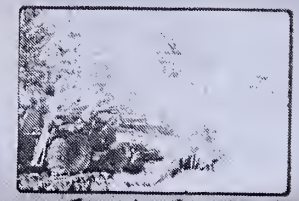
MAY 89

Removing Debris JANich Lower #20

5-4-89 128

MAY 89

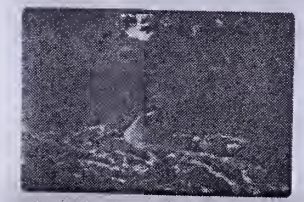
Burning Debris JANich Lower #20



5-4-89 129

MAY 89

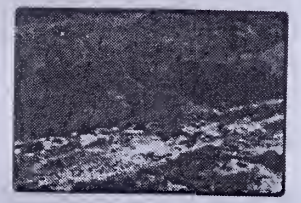
Spreading Lime JANich #20 lower



5-5-89 130

MAY 89

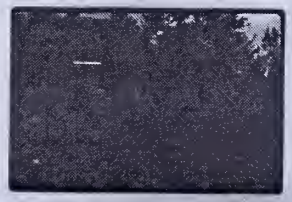
Working Lime IN with JD Loader JANich #20 lower



5-5-89 131

MAY 89

HAULing Top Soil JANich #20 lower



5-5-89 132

MAY 89

JAnich 20 Lower 5-23-1989

Regrading access Road

Musselshell / Yellowstone 133

JAnich 20 Lower 5-23-1989

Drill Seeding Site

Musselshell / Yellowstone 134

JAnich 20 Lower 5-23-1989

Fertilizing Site

Musselshell / Yellowstone 135

JAnich 20 Lower 5-23-1989

Spreading mulch by Hand

Musselshell / Yellowstone 136

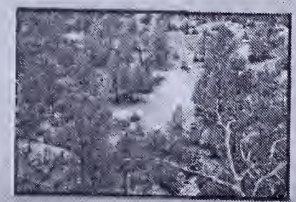
JAnich 20 Lower 5-23-1989

Crimping mulch

Musselshell / Yellowstone 137

JAnich 20 Lower 5-24-1989

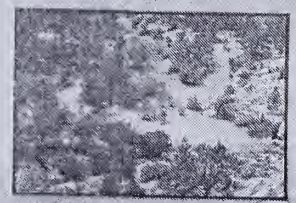
Reclaimed Borrow Area



Musselshell / Yellowstone 138

JAnich 20 Lower 5-24-1989

Reclaimed Site



Musselshell / Yellowstone 139

Adit AT #20 EXTRA

5-3-89

MAY 89 140

Coal Slack & Rock Wall JANICH #20 EXTRA

5-3-89

MAY 89 141

JANICH 20 5-18-1989

New

Removing Debris From Adit

142

Mussel shell / Yellow

JANICH 20 5-18-1989

New

Demolishing Retaining Wall

143

Mussel shell / Yellow

JANICH 20 5-18-1989

New

sealing Adit

144

Mussel shell / Yellow

JANICH 20 5-29-1989

New

Backfilling Adit Depression

145

Mussel shell / Yellow

JANICH 20 5-29-1989

New

Spreading Lime by Hand

146

Mussel shell / Yellow

JANICH 20 5-24-1989

New

mixing lime with coal slack

147

Mussel shell / Yellow

JANICH 20 5-24-1989

New

Topsoiling Site

148

Mussel shell / Yellow

JANICH 20 5-25-1989

New

Fertilizing Site

149

Mussel shell / Yellow

JANICH 20 5-25-1989

New

Seeding Site

150

Mussel shell / Yellow

JANICH 20 5-25-1989

New

Spreading mulch

151

Mussel shell / Yellow

JANICH 20 5-25-1989

New

Crimping mulch

152

Mussel shell / Yellow

JANICH 20 5-25-1989

New

Reclaimed Site

153

Mussel shell / Yellow

Burning Coal Seam JANICH #20 Fire

5-4-89

MAY 89 154

Burning Coal Seam JANICH #20 Fire

5-4-89

MAY 89 155

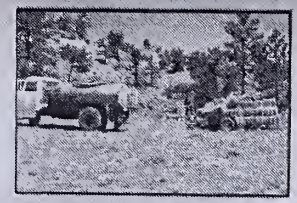
JANICH 20 Fire 5-9-1989 Cutting Road Into Site

Musselshell/Yellow 156

JANICH 20 Fire 5-9-1989 Site Prior to Burning Coal Excavation

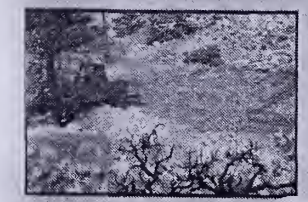
Musselshell/Yellows 157

JANICH 20 Fire 5-11-1989 Burning Debris



Musselshell/Yellows 158

JANICH 20 Fire 5-9-1989 Digging coal Disposal Pit



Musselshell/Yellows 159

JANICH 20 Fire 5-9-1989 Excavating Burning Coal

Musselshell/Yellow 160

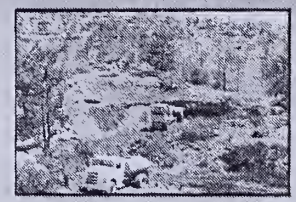
JANICH 20 Fire 5-9-1989 Extinguishing Burning Coal in Pit

Musselshell/Yellow 161

JANICH 20 Fire 5-11-1989 Liming extinguished coal in Pit

Musselshell/Yellow 162

JANICH 20 Fire 5-10-1989 Reboiling Slope From which coal was Excavated



Musselshell/Yellows 163

JANICH 20 Fire 5-11-1989 Burying Disposal Pit with subsoil

Musselshell/Yellow 164

JANICH 20 Fire 5-11-1989 Topsoiling Site

Musselshell/Yellow 165

JANICH 20 Fire 5-22-1989 Regrading Access Road

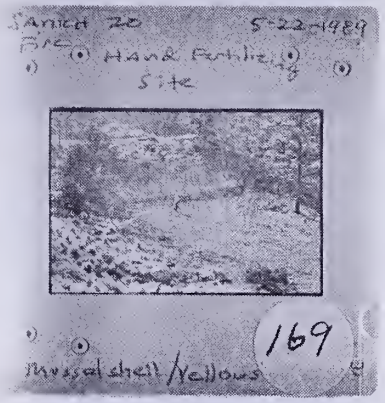
Musselshell/Yellow 166

Janich 20 Fire 5-22-1989 Drill Seeding Access Road

Musselshell/Yellow 167

JANICH 20 Fire 5-22-1989 Drill Seeding Site

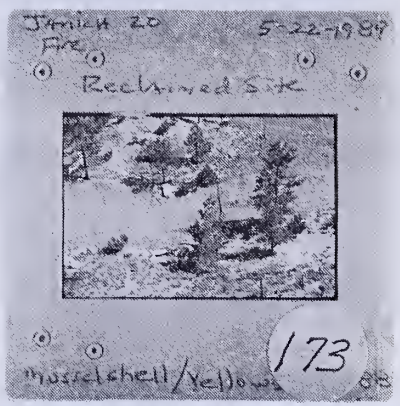
Musselshell/Yellow 168

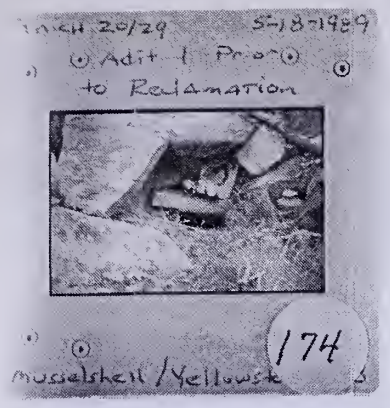

JANICH 20
5-22-1989
Fire
Hand Fertilizing
Site
169
Mussel shell / Yellows

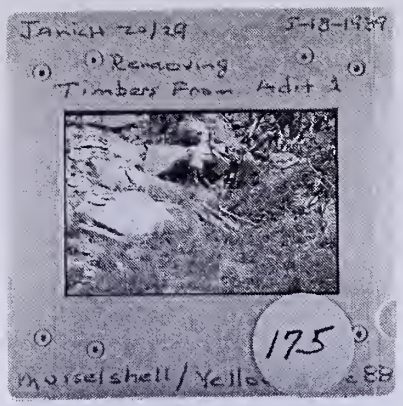
JANICH 20
5-22-1989
Fire
Spreading
mulch by Hand
170
Mussel shell / Yellows

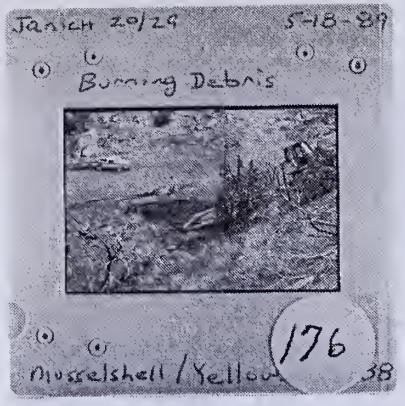
JANICH 20
5-22-1989
Fire
Crimping mulch
171
Mussel shell / Yellow

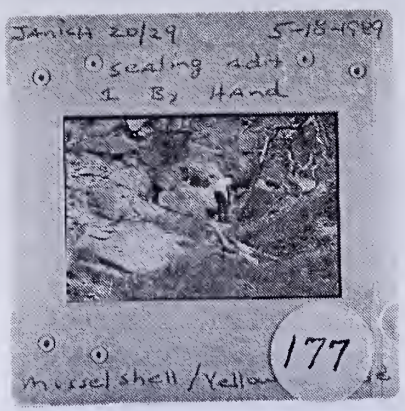
JANICH 20
5-22-1989
Fire
Reclaimed Site
172
Mussel shell / Yello


JANICH 20
5-22-1989
Fire
Reclaimed Site
173
Mussel shell / Yellows

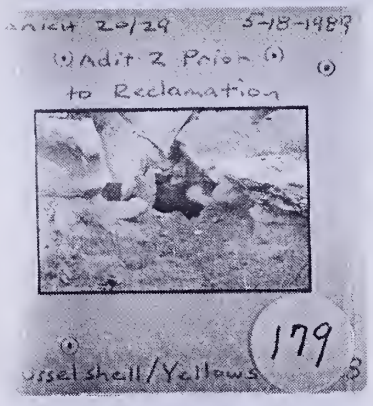

Janich 20/29 5-18-1989
Adit 1 Prior to Reclamation
174
Musselshell/Yellowst

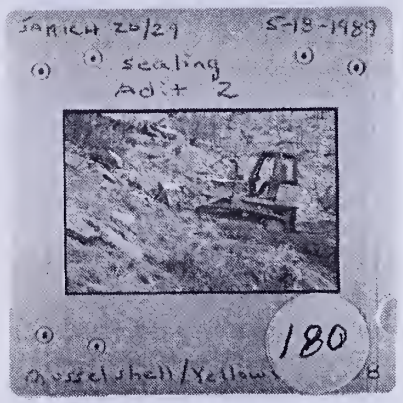

Janich 20/29 5-18-1989
Removing Timbers From Adit 1
175
Musselshell/Yello


Janich 20/29 5-18-89
Burning Debris
176
Musselshell/Yellow

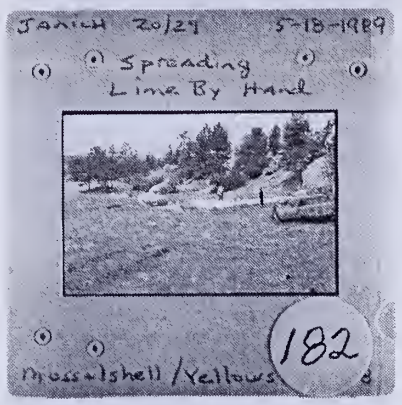

Janich 20/29 5-18-1989
Sealing Adit 1 By Hand
177
Musselshell/Yellow

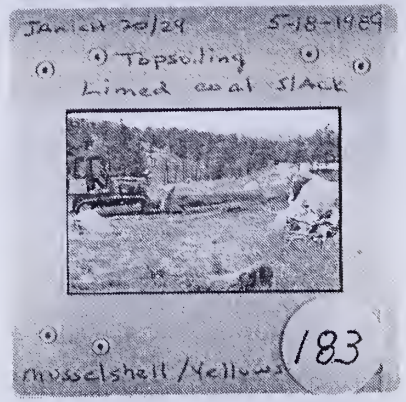
Janich 20/29 5-18-1989
Sealed Adit 1
178
Musselshell/Yellow

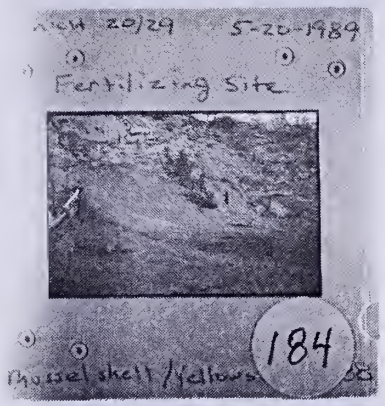

Adit 2 Prior to Reclamation
179
Musselshell/Yellows

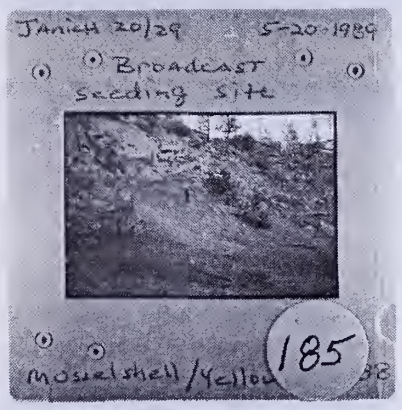

Janich 20/29 5-18-1989
Sealing Adit 2
180
Musselshell/Yellow

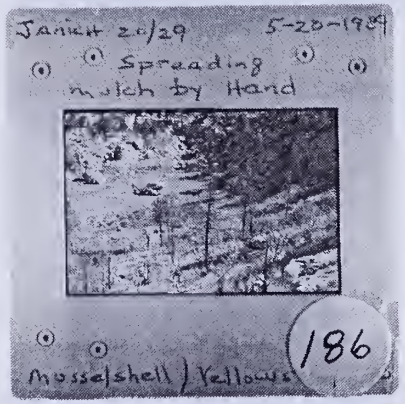
Janich 20/29 5-18-1989
Topsoiling Adit 2 area
181
Musselshell/Yellow

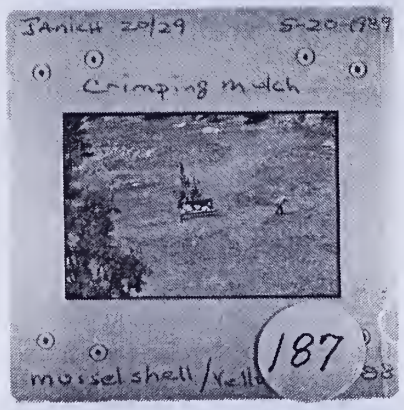

Janich 20/29 5-18-1989
Spreading Lime By Hand
182
Musselshell/Yellows

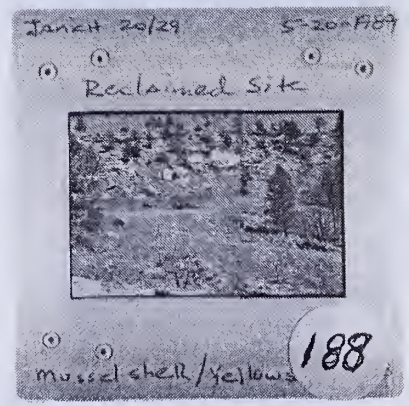

Janich 20/29 5-18-1989
Topsoiling Limed coal slack
183
Musselshell/Yellows


5-20-1989
Fertilizing Site
184
Musselshell/Yellows


Janich 20/29 5-20-1989
Broadcast seeding site
185
Musselshell/Yellow


Janich 20/29 5-20-1989
Spreading mulch by Hand
186
Musselshell/Yellows


Janich 20/29 5-20-1989
Crimping mulch
187
musselshell/Yello


Janich 20/29 5-20-1989
Reclaimed Site
188
musselshell/Yellows

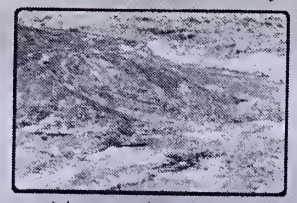
Scraper stuck in old Pond
JANICH #29

4-19-89
MAY 83
189

EXCAVATing of new POND
JANICH #29

4-24-89
MAY 83
190

EXCAVATed POND
JANICH #29



4-24-89
MAY 83
191

Working in Lime
JANICH #29

4-24-89
MAY 83
192

JANICH 29 4-25-1989
Topsoiling site with Scraper

Musselshell/Yellowst
193

JANICH 29 4-25-1989
Topsoiling with Backhoe

Musselshell/Yellow
194

JANICH 29 4-25-1989
Site after topsoiling

Musselshell/Yellowst
195

JANICH 29 4-25-1989
Hand Fertilizing site

Musselshell/Yellowst
196

JANICH 29 4-25-1989
Drill seeding site

Musselshell/Yellowst
197

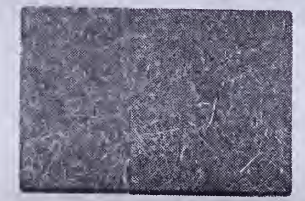
Spreading Mulch
JANICH #29

5-2-89
MAY 83
198

Spreading Mulch
JANICH #29

5-2-89
MAY 83
199

Crimped Mulch
JANICH #29

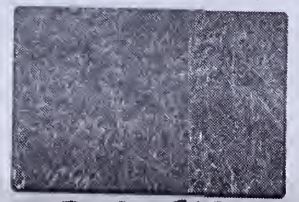


5-2-89
MAY 83
200

Crimping site
JANICH #29

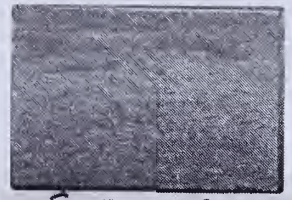
5-2-89
MAY 83
201

Crimped Mulch
JANICH #29



5-2-89
MAY 83
202

Mulched site
JANICH #29



5-2-89
MAY 83
203

Corner Double Panel
Janich #29

5-2-89 204
MAY 89

Working Fence
Janich #29

5-2-89 205
MAY 89

Fence Gate with Closure
Janich #29

5-2-89 206
MAY 89

String Barbwire
Janich #29

5-2-89 207
MAY 89

Barb wire tag
Janich #29

5-2-89 208
MAY 89

Project sign
Janich #29 site

5-2-89 209
MAY 89

Culvert site
Janich Ranch site

5-6-89 210
MAY 89

Culvert layed in
Janich Ranch site

5-6-89 211
MAY 89

Installed Culvert
Janich Ranch site

5-6-89 212
MAY 89

Shepherd 6-6-1989
Borrow area
Prior to Reclamation

213
Musselshell/Yellow

Shepherd 6-6-1989
Stripping
topsoil from site

214
Musselshell/Yellow

Brown/Chuter 6-9-1989
Fire Excavating
Fire Disposal Pit

215
Musselshell/Yellow

Shepherd 6-6-1989
SP-1
Prior to Reclamation

216
Musselshell/Yellow

Shepherd 6-6-1989
Excavating
Between Adit 2 and SP-1

217
Musselshell/Yellow

Shepherd 6-6-1989
Reclaimed
Adit 1 area

218
Musselshell/Yellow

Shepherd 6-6-1989
Backfilling
SP-1

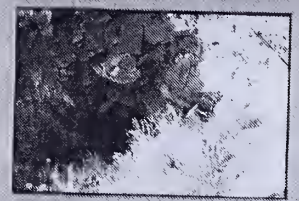
219
Musselshell/Yellow

Shepherd 6-6-1989
Backfilling
Excavation Between
Adit 2 and SP-1

220
Musselshell/Yellow

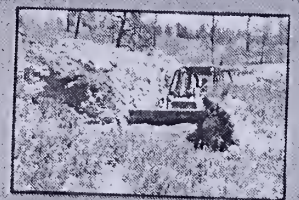
Shepherd 6-6-1989
Adit 2
Prior to Reclamation

221
Musselshell/Yellow

Shepherd 6-6-1989
Adit 1
Prior to Reclamation

222
Musselshell/Yellow

Shepherd 6-6-1989
SP-2
Prior to Reclamation

223
Musselshell/Yellow

Shepherd 6-6-1989
Excavating
Between Adit 2 and SP-2

224
Musselshell/Yellow

Shepherd 6-7-1989
Backfilling/
Regrading SP-2 area

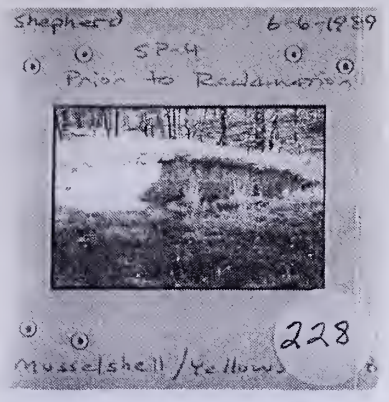
225
Musselshell/Yellow

Shepherd 6-6-1989
SP-3
Prior to Reclamation

226
Musselshell/Yellow

Shepherd 6-6-1989
Backfilling
SP-3

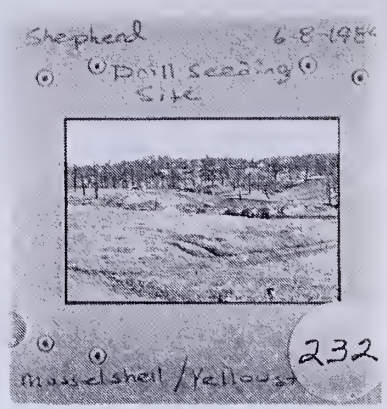
227
Musselshell/Yellow

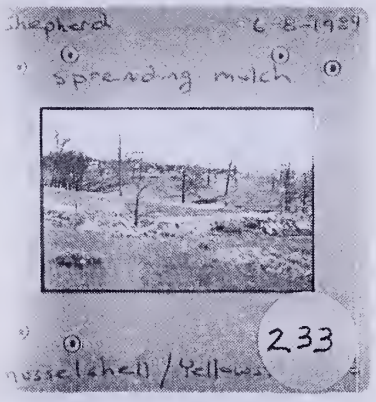

Shepherd 6-6-1989
SP-4
Prior to Reclamation
228
Musselshell/Yellows

Shepherd 6-6-1989
Backfilling
SP-4
229
musselshell/Yellows

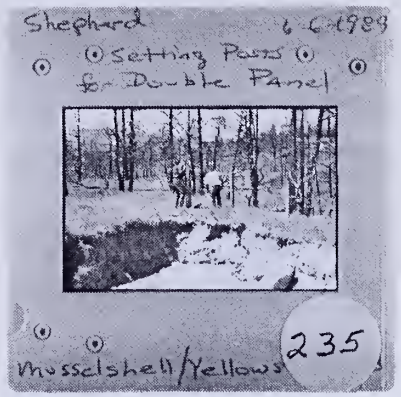
Shepherd 6-6-1989
SP-5
230
musselshell/Yellow

Shepherd 6-7-1989
Topsoiling
Site
231
Musselshell/Yellowst


Shepherd 6-8-1989
Drill Seeding
Site
232
musselshell/Yellowst

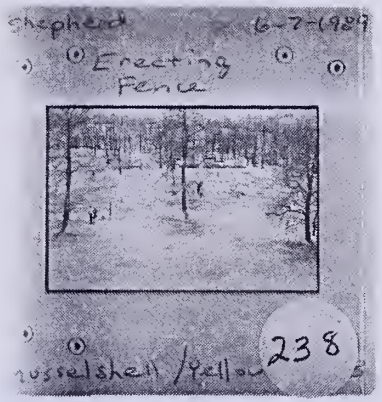

Shepherd 6-8-1989
spreading mulch
233
musselshell/Yellows

Shepherd 6-6-1989
Boring Holes
For Double Panel
234
musselshell/Yellow

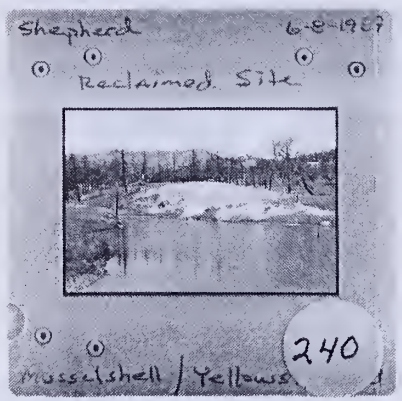

Shepherd 6-6-1989
Setting Posts
for Double Panel
235
musselshell/Yellows

Shepherd 6-7-1989
Wiring
Double Panels
236
musselshell/Yellows

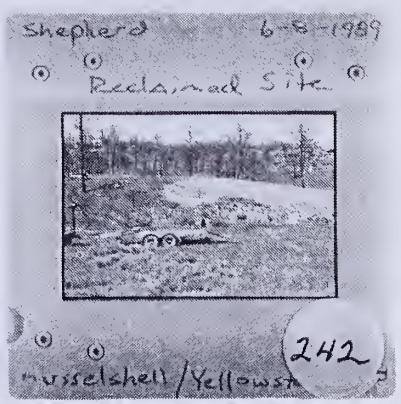
Shepherd 6-8-1989
Finished Gate
237
musselshell/Yellowst


Shepherd 6-7-1989
Erecting
Fence
238
musselshell/Yellow

Shepherd 6-8-1989
Reclaimed Site
239
musselshell/Yellows


Shepherd 6-8-1989
Reclaimed Site
240
musselshell/Yellows

Shepherd 6-8-1989
Reclaimed Site
241
musselshell/Yellowst


Shepherd 6-8-1989
Reclaimed Site
242
musselshell/Yellowst

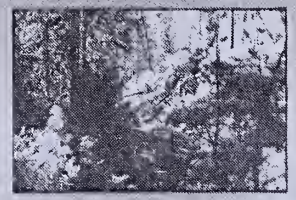
Carlson Coal 6/20/1989
Fire — Constructing temporary Gate

Musselshell/Yellows 243

Carlson Coal 6/20/1989
Fire — Coal Bank Prior to reclamation

Musselshell/Yellows 244

Carlson Coal 6/20/1989
Fire — Coal Bank Prior to Reclamation



Musselshell/Yellows 245

Carlson Coal 6/20/1989
Fire — Disposal Pit Area prior to construction

Musselshell/Yellows 246

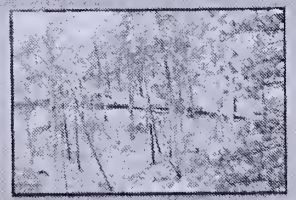
Carlson Coal 6/20/1989
Fire — Haul Road Area prior to reclamation

Musselshell/Yellows 247

Carlson Coal 6/20/1989
Fire — Building Coal Haul Road

Musselshell/Yellows 248

Carlson Coal 6/20/1989
Fire — Clearing Logs From Haul Road

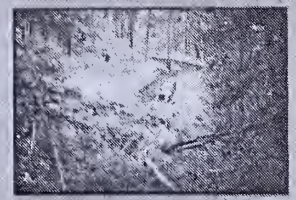


Musselshell/Yellows 249

Carlson Coal 6/20/1989
Fire — Constructing Coal Haul Roads

Musselshell/Yellows 250

Carlson Coal 6/20/1989
Fire — Excavating Coal Fire overburden



Musselshell/Yellows 251

Carlson Coal 6/23/1989
Fire — Stripping topsoil from Disposal Pit

Musselshell/Yellows 252

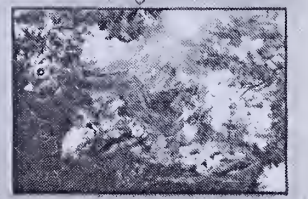
Carlson Coal 6/23/1989
Fire — Excavating Coal Disposal Pit

Musselshell/Yellows 253

Carlson Coal 6/23/1989
Fire — Excavating seam overburden

Musselshell/Yellows 254

Carlson Coal 6/20/1989
Fire — Excavating Burning Coal



Musselshell/Yellows 255

Carlson Coal 6/23/1989
Fire — Placing Burning Coal in disposal Pit

Musselshell/Yellowstone 256

Carlson Coal 6/26/1989
Fire — Clearing Trees from coal Fire area

Musselshell/Yellow 257

COAL SEAM & Loader
Carlson Coal Fire

6-29-89
258
MUSSELSHELL/YE...

COAL SEAM
Carlson Coal Fire

6-29-89
259
MUSELSHELL/YELL...

LOADER digging disposal
Carlson fire
Pit #2

6-29-89
260
MUSSELSHELL/YE...

SPREADING LIME ON
Carlson fire
Disposal Pit #1

6-29-89
261
MUSSELSHELL/YELL...

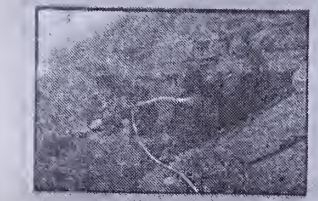
Disposal Pit #2
Carlson Coal Fire

6-29-89
262
MUSSELSHELL/YELL 89

Burning Coal
Seam

6-30-89
263
MUSSELSHELL/YELL 89

Watering down
Carlson fire
Hot Coal seam



6-30-89
264
MUSSELSHELL/YELL...

EXCAVATION
TO DATE
Carlson Coal Fire

7-5-89
265
MUSSELSHELL/YELL

MAKING DAM FOR
WATER SOURCE
Carlson Fire

7-5-89
266
MUSSELSHELL/YELL 8...

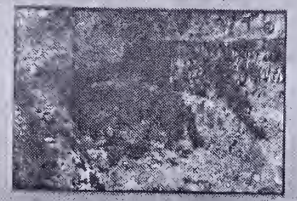
Checking Coal Seam
For Hot Spots

7-6-89
267
MUSSELSHELL/YELL

MAJORITY OF COAL
SEAM
EXCAVATION

7-6-89
268
MUSSELSHELL/YELL -89

END OF COAL SEAM
EXCAVATION



7-7-89
269
MUSSELSHELL/YELL-...

Carlson Coal Fire
6/22/1989
Excavating holes for Double Pan

270
Musselshell/Yellowst...

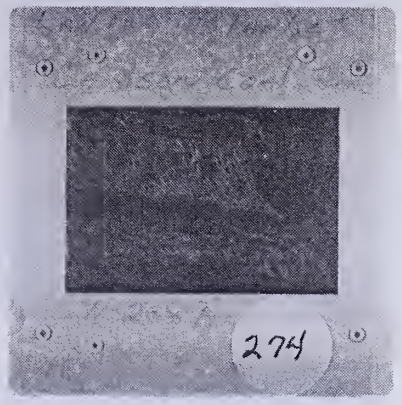
Fire threat Carlson fire site

10-26-89
68 100
271

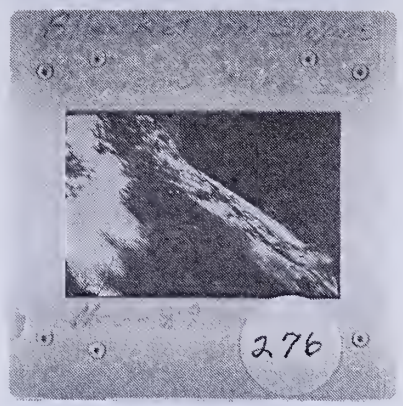
Burning Coal
Carlson Coal Fire

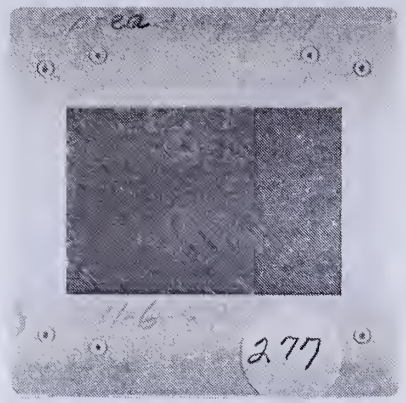
10-26-89
272
68 100

End Coal Seam
11-27-89
273

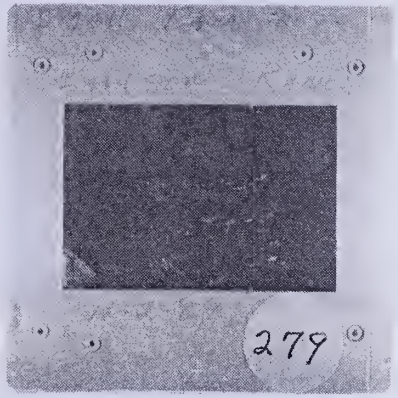

274

275


276


277

278


279

280

281

MUSSELSHELL-YELLOWSTONE 88
PRE-CONST
COAL FIRE BANK

7-27-89
282
WADE COAL FIRE

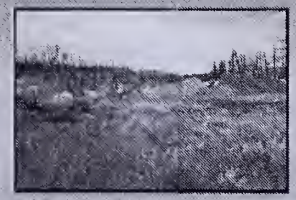
MUSSELSHELL-YELLOWSTONE 88
REMOVING
TOPSOIL FROM DISPOSAL PIT

7-27-89
283
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
BUILDING ACCESS
down to COAL FIRE

7-27-89
284
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
DISPOSAL pit



7-27-89
285
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
REMOVING
OVERBURDEN FROM COAL FIRE

7-27-89
286
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
WATERING down
COAL FIRE IN PIT

7-27-89
287
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
WATERING DOWN
COAL FIRE IN PIT

7-27-89
288
WADE COAL FIRE

MUSSELSHELL-YELLOWSTONE 88
COAL FIRE BANK
AFTER MOST OF COAL FIRE REMOVED

7-27-89
289
WADE COAL FIRE

MUSSELSHELL-YELLOWSTONE 88
DISPOSAL PIT
AFTER BACKFILLING.

8-9-89
290
WADE COAL FIRE

MUSSELSHELL-YELLOWSTONE 88
DISPOSAL PIT
AFTER SUB-SOIL BACKFILL

8-9-89
291
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
COAL BANK AREA
AFTER BACKFILL

8-4-89
292
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE 88
COAL SEAM BANK
after BACKFILL

8-4-88
293
WADE COAL FIRE #2

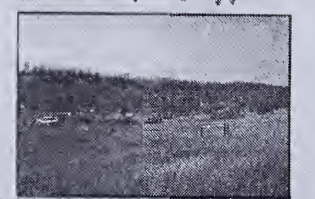
MUSSELSHELL-YELLOWSTONE 88
WATER HOLE
IN COW CREEK.

8-4-89
294
WADE COAL FIRE #2

MUSSELSHELL-YELLOWSTONE
FENCING Complete

8-8-89
295
WADE COAL FIRE

MUSSELSHELL-YELLOWSTONE 88
FENCING Complete



8-8-89
296
WADE COAL FIRE

JD 755 spreading Top Soil Wade # 2

10/12/89

68 100 OCT 89 297

Laying Erosion Blanket Wade # 2

10-12-89

68 100 OCT 89 298

Blanket on slopes Wade # 2

10-12-89

68 100 OCT 89 299

Spreading Hay Wade # 2

10-12-89

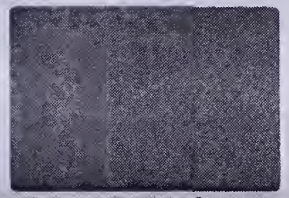
68 100 OCT 89 300

Loose Hay Spread Wade # 2

10-12-89

68 100 OCT 89 301

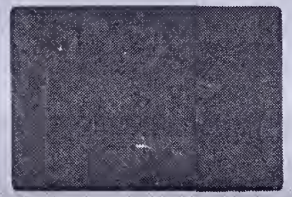
Crimping Hay with 580 Case Wade # 2



10-13-89

68 100 OCT 89 302

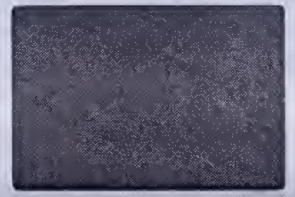
Crimping Hay with 580 Case Wade # 2



10-13-89

68 100 OCT 89 303

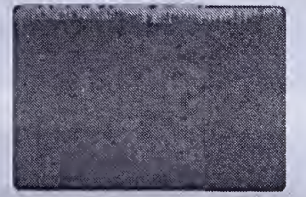
Hay Crimped Wade # 2



10-13-89

68 100 OCT 89 304

Finish site Wade # 2



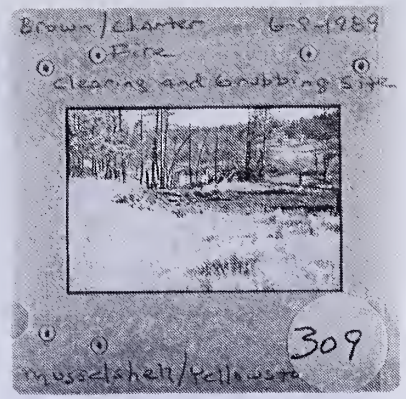
10-13-89

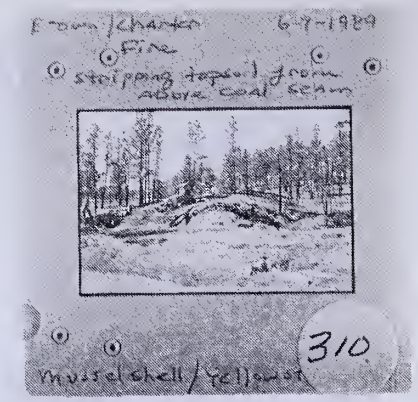
68 100 OCT 89 305

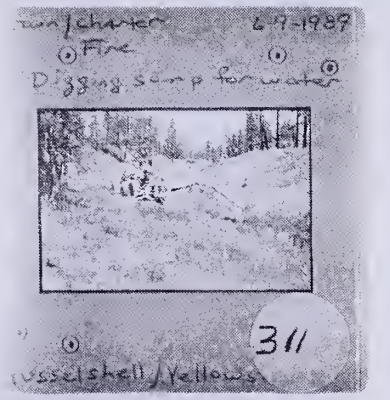
Brown/Charter 6-9-1989
Fire
Site Prior to Reclamation
306
Musselshell/Yellowst

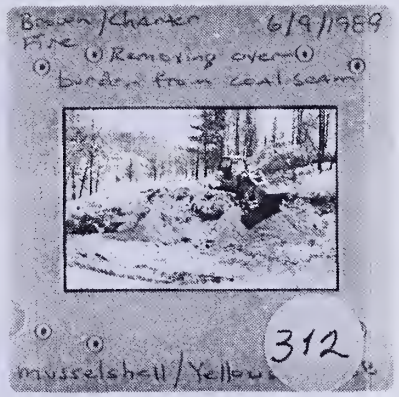
Brown/Charter 6-9-1989
Fire
Site Prior to Reclamation
307
Musselshell/Yellow

Brown/Charter 6-9-1989
Fire
Site Prior to Reclamation
308
Musselshell/Yellowst


Brown/Charter 6-9-1989
Fire
Cleaning and Grubbing Site
309
Musselshell/Yellowst

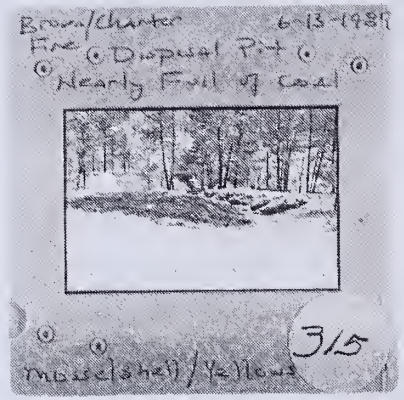

Brown/Charter 6-9-1989
Fire
Stripping topsoil from above Coal Seam
310
Musselshell/Yellowst

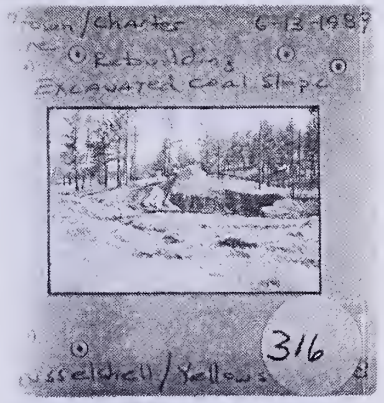

Brown/Charter 6-9-1989
Fire
Digging sump for water
311
Musselshell/Yellowst

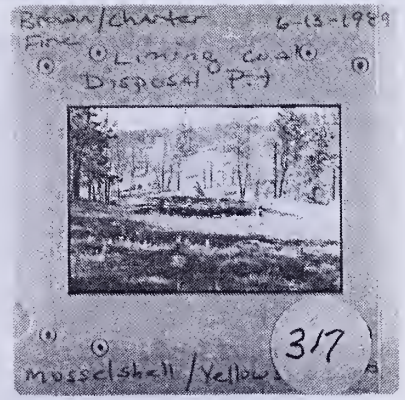

Brown/Charter 6/9/1989
Fire
Removing over burden from coal seam
312
Musselshell/Yellow

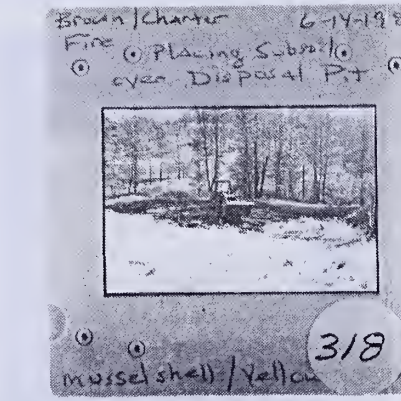
Brown/Charter 6-12-1989
Fire
Excavating Burning Coal
313
Musselshell/Yellow

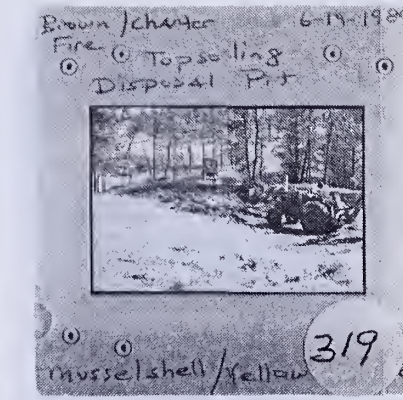
Brown/Charter 6-12-1989
Fire
Extinguishing Burning coal in Pit
314
Musselshell/Yellowst

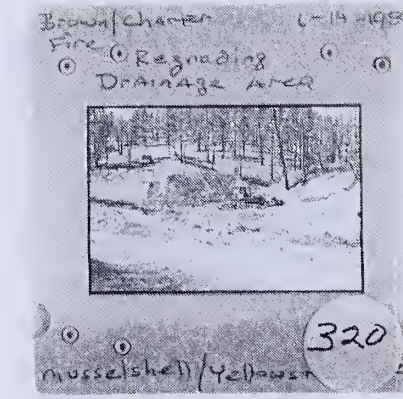

Brown/Charter 6-13-1989
Fire
Disposal Pit
Nearly Full of Coal
315
Musselshell/Yellowst

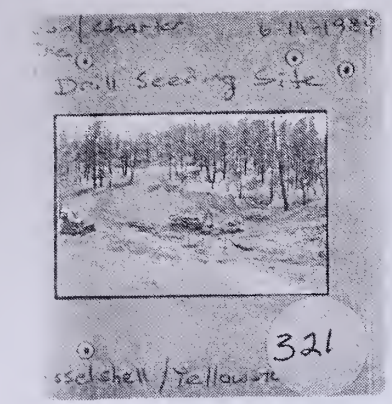

Brown/Charter 6-13-1989
Fire
Rebuilding Excavated coal Slope
316
Musselshell/Yellowst

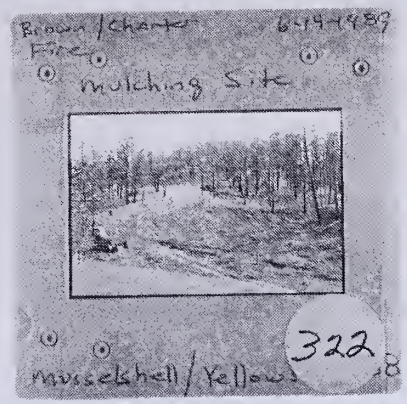

Brown/Charter 6-13-1989
Fire
Lining coal Disposal Pit
317
Musselshell/Yellow


Brown/Charter 6-14-1989
Fire
Placing Subsoil over Disposal Pit
318
Musselshell/Yellow


Brown/Charter 6-19-1989
Fire
Topsoiling Disposal Pit
319
Musselshell/Yellow


Brown/Charter 6-19-1989
Fire
Regrading Drainage Area
320
Musselshell/Yellowst

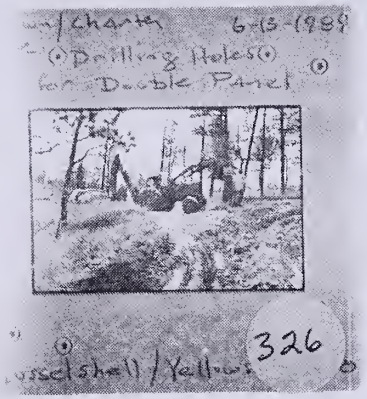

Drill Seeding Site
321


Mulching Site
322

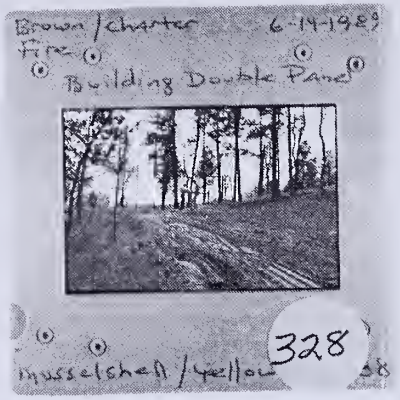
Reclaimed
Dozer Cut
323

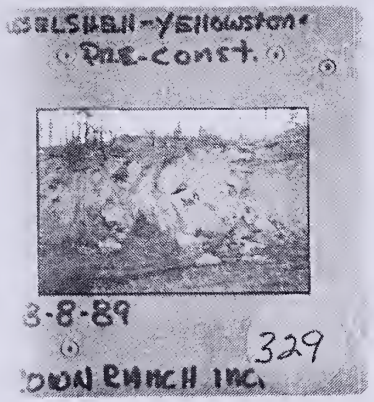
Reclaimed
Coal Bank Area
324

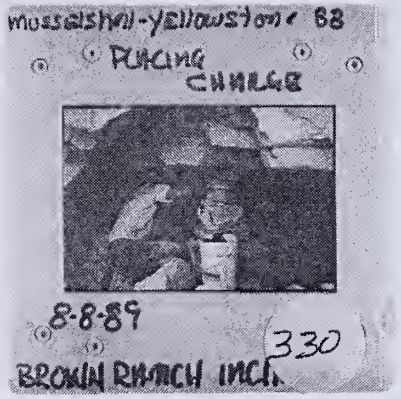
Reclaimed
Disposal Pit Area
325


Drilling Holes
for Double Panel
326

Erecting Fence
327


Building Double Panel
328


Pre-Const.
8-8-89
329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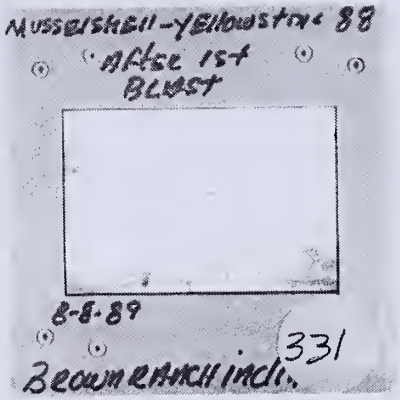
330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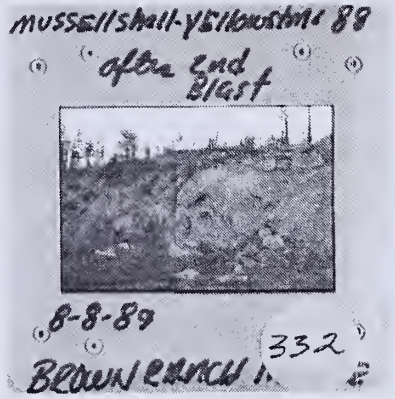
8-8-89
331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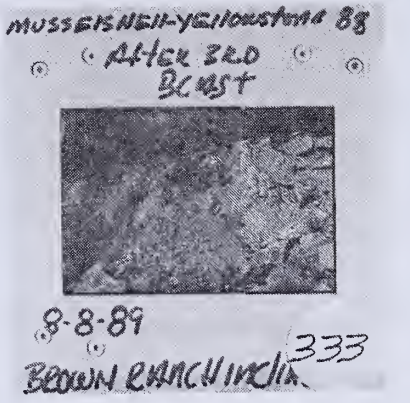
8-8-89
332


After 3rd Blast
8-8-89
333

APPENDIX B

FINAL PAY REQUEST

AND

CHANGE ORDERS

Payment Request No. 7
Fianl Payment Request

From: December 7, 1988 To: November 21, 1989
Project Name: Musselshell-Yellowstone 88
Location: Musselshell and Yellowstone Counties, Montana
Project No.: Mont A/E 88-46-123
Name of Contractor: Willie E. Baxter Construction
Address: 4014 Hardin Road Billings, MT 59101

Summary Of Project Status

Amount of Original Contract	$	59,350.52
Amount of Approved Change Order(s)		53,507.66
TOTAL CONTRACT AMOUNT		112,858.18
Contract Time Used to Date		152 Days
Percentage of Contract Time Used		99 %
Percentage of Contract Amount Earned		100 %

Original Contract Amount Completed	57,149.99
Change Order(s) Amount Completed	55,708.19
Amount for Material On Site	0.00
TOTAL AMOUNT Earned to Date	112,858.18
Less Previous Amount Earned	88,947.38
Amount Payable This Period	23,910.80
Less 1% Gross Receipts Tax	239.10
TOTAL DUE CONTRACTOR THIS PERIOD	23,671.70

Requested By: Willie E. Baxter Construction Ed Baxter (Contractor) Date: 12-7-89

Checked By: Spectrum Engineering Gary W Dome (Engineer) Date: 12/7/89

Approved By: Department of State Lands Abandoned Mine Reclamation Bureau Larry Marshall (Owner) Date: 12/8/89

PAY REQUEST NO. 7
SPECTRUM ENGINEERING

Abandoned Mine Reclamation Bureau

MUSSELSHELL-YELLOWSTONE 88 PROJECT
MUSSELSHELL AND YELLOWSTONE COUNTIES
MONT A/E 88-46-123

Willie E. Baxter Const.
Billings
4884A

Bid Opening: Oct. 26, 1988

Item No.	Est. Quantity	Unit	Description	Unit Price	Total Price	Units Completed This Request	Units Completed To Date	Total Cost of Completed Work	% of Estimated Quantity Complete	Amount Payable This Request	Amount Payable Previous Requests	Total Amount Payable
1	1	LUMP SUM	MOBILIZATION	XXXXXXX	$6,000.00	0.0	1.8	$10,550.00	175.8%	$4,614.95	$5,935.05	$10,550.00
2	1	LUMP SUM	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	XXXXXXX	1,300.00	0.0	1.0	1,300.00	100.0%	0.00	1,300.00	1,300.00
3	1	LUMP SUM	DEBRIS CLEANUP	XXXXXXX	880.00	0.0	1.3	1,120.00	127.3%	0.00	1,120.00	1,120.00
4	1	LUMP SUM	CLEARING AND GRUBBING	XXXXXXX	460.00	0.0	5.7	2,626.00	570.9%	0.00	2,626.00	2,626.00
5	1	LUMP SUM	SALVAGE AND REPLACE TOPSOIL	XXXXXXX	4,400.00	0.4	2.0	8,762.00	199.1%	1,721.00	7,041.00	8,762.00
6	82.8	KGAL	PROVIDE WATER	25.00	2,070.00	0.0	43.4	1,085.00	52.4%	0.00	1,085.00	1,085.00
7	11	EACH	CLOSE MINE OPENINGS	300.00	3,300.00	0.0	12.0	3,600.00	109.1%	0.00	3,600.00	3,600.00
8	1	EACH	ADIT GRATE INSTALLATION	750.00	750.00	0.0	1.0	750.00	100.0%	0.00	750.00	750.00
9	1	LUMP SUM	REGRADE AREA	XXXXXXX	980.00	0.1	1.3	1,310.00	133.7%	100.00	1,210.00	1,310.00
10	1	LUMP SUM	EXCAVATE & REGRADE STOCK POND	XXXXXXX	887.50	0.0	1.0	887.50	100.0%	0.00	887.50	887.50
11	1	LUMP SUM	EXCAVATE SUBSIDENCE DEPRESSION OVERHANGS	XXXXXXX	2,800.00	0.0	1.0	2,800.00	100.0%	0.00	2,800.00	2,800.00
12	1	LUMP SUM	BLAST DOWN/EXCAVATE MINE ROOF	XXXXXXX	3,750.00	0.0	1.4	5,150.00	137.3%	0.00	5,150.00	5,150.00
13	1	LUMP SUM	EXCAVATE CHECK DITCHES	XXXXXXX	825.00	0.0	1.0	825.00	100.0%	0.00	825.00	825.00
14	1	LUMP SUM	EXCAVATE COAL DISPOSAL PIT AND STRIP OVERBURDEN FROM BURNING COAL AND STOCKPILE MATERIAL	XXXXXXX	465.00	0.0	23.4	10,902.00	2344.5%	0.00	10,902.00	10,902.00
15	1	LUMP SUM	EXCAVATE AND EXTINGUISH BURNING COAL	XXXXXXX	675.00	0.0	16.8	11,350.00	1681.5%	0.00	11,350.00	11,350.00
16	1	LUMP SUM	PLACE OVERBURDEN FROM STOCKPILES AND REGRADE	XXXXXXX	465.00	2.8	15.5	7,198.00	1548.0%	1,325.00	5,873.00	7,198.00
17	1	LUMP SUM	BACKFILL SUBSIDENCE AND/OR COLLAPSED ADIT DEPRESSIONS	XXXXXXX	2,110.00	0.0	1.0	2,110.00	100.0%	0.00	2,110.00	2,110.00
18	1	LUMP SUM	EXCAVATE STREAM CHANNEL	XXXXXXX	365.50	0.0	1.0	365.50	100.0%	0.00	365.50	365.50
19	1	LUMP SUM	REGRADE COAL SLACK MATERIAL	XXXXXXX	215.00	0.0	1.0	215.00	100.0%	0.00	215.00	215.00
20	2.66	ACRES	LIME PLACEMENT	1880.00	5,000.80	0.00	2.92	5,489.60	109.8%	0.00	5,489.60	5,489.60
21	1	LUMP SUM	PROVIDE TOPSOIL FROM BORROW AREAS	XXXXXXX	3,561.25	0.0	1.0	3,591.25	100.8%	0.00	3,591.25	3,591.25
22	8.34	ACRES	FERTILIZE, SEED AND HAY MULCH	1223.00	10,199.82	4.47	10.31	12,609.13	123.6%	5,466.81	7,142.32	12,609.13
23	3539	L. FEET	FARM FENCE - TYPE F-4M	0.75	2,654.25	0.0	6554.0	4,915.50	185.2%	0.00	4,915.50	4,915.50
24	41	EACH	FARM FENCE DOUBLE PANEL	90.00	3,690.00	0.0	49.0	4,410.00	119.5%	0.00	4,410.00	4,410.00
25	17	EACH	FARM FENCE SINGLE PANEL	60.00	1,020.00	0.0	21.0	1,260.00	123.5%	0.00	1,260.00	1,260.00
26	112	L. FEET	12 FARM FENCE GATES - TYPE G-2	4.70	526.40	0.0	161.0	756.70	143.8%	0.00	756.70	756.70
SUBTOTALS					$59,350.52			$105,938.18		$13,227.76	$92,710.42	$105,938.18
ITEMS NOT LISTED UNDER ORIGINAL CONTRACT												
27	0	SQ FT	EROSION CONTROL BLANKET	2.25	0.00	0.00	2720.0	6,120.00	100.0%	0.00	6,120.00	6,120.00
28		L. FEET	PROVIDE AND INSTALL 18-INCH DIAMETER CMP CULVERT (40 FT)	20.00	0.00	40.00	40.0	800.00	100.0%	800.00	0.00	800.00
TOTALS					$59,350.52			$112,858.18		$14,027.76	$98,830.42	$112,858.18

PROJECT PAY SUMMARY
SPECTRUM ENGINEERING

Abandoned Mine Reclamation Bureau

MUSSELSHELL-YELLOWSTONE 88 PROJECT
MUSSELSHELL AND YELLOWSTONE COUNTIES
MONT A/E 88-46-123

Bid Opening: Oct. 26, 1988

Willie E. Baxter Const.
Billings
4884A

	Est. Qty.	Unit	Description	Unit Price	Total Price Original Contract	Units Complete Original Contract	Units Complete Janch 20 New	Units Complete Brn/Chtr Fire	Units Complete Brn Rnch Incline	Units Complete Carlson Fire	Units Complete Wade #2 Fire	Units Complete Antelope Maint.	Total Units Complete	Amount Payable Original Contract	Amount Payable Janich 20 New	Amount Payable Brn/Chrtr Fire	Amount Payable Brn Rnch Incline	Amount Payable Carlsoo Fire	Amount Payable Wade #2 Fire	Amount Payable Antelope Maint.	Total Amount Payable
	1	LMP SUM	MOBILIZATION	XXXXXXX	$6,000.00	1.00	0.04	0.17	0.00	0.17	0.33	0.05	1.76	$6,000.00	$250.00	$1,000.00	$0.00	$1,000.00	$2,000.00	$300.00	$10,550.00
	1	LMP SUM	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	XXXXXXX	1,300.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	1,300.00
	1	LMP SUM	DEBRIS CLEANUP	XXXXXXX	880.00	1.00	0.27	0.00	0.00	0.00	0.00	0.00	1.27	880.00	240.00	0.00	0.00	0.00	0.00	0.00	1,120.00
	1	LMP SUM	CLEARING AND GRUBBING	XXXXXXX	460.00	1.00	0.00	1.09	0.00	2.17	1.45	0.00	5.71	460.00	0.00	500.00	0.00	1,000.00	666.00	0.00	2,626.00
	1	LMP SUM	SALVAGE AND REPLACE TOPSOIL	XXXXXXX	4,400.00	1.00	0.00	0.20	0.00	0.47	0.32	0.00	1.99	4,400.00	20.00	900.00	0.00	2,050.00	1,392.00	0.00	8,762.00
	82.8	KGAL	PROVIDE WATER	25.00	2,070.00	7.20	0.00	9.10	0.00	23.90	3.20	0.00	43.40	180.00	0.00	227.50	0.00	597.50	80.00	0.00	1,085.00
	11	EACH	CLOSE MINE OPENINGS	300.00	3,300.00	11.00	1.00	0.00	0.00	0.00	0.00	0.00	12.00	3,300.00	300.00	0.00	0.00	0.00	0.00	0.00	3,600.00
	1	EACH	ADIT GRATE INSTALLATION	750.00	750.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	750.00	0.00	0.00	0.00	0.00	0.00	0.00	750.00
9	1	LMP SUM	REGRADE AREA	XXXXXXX	980.00	1.00	0.05	0.18	0.00	0.00	0.00	0.10	1.34	980.00	50.00	180.00	0.00	0.00	0.00	100.00	1,310.00
10	1	LMP SUM	EXCAVATE & REGRADE STOCK POND	XXXXXXX	887.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	887.50	0.00	0.00	0.00	0.00	0.00	0.00	887.50
11	1	LMP SUM	EXCAVATE SUBSIDENCE DEPRESSION OVERHANGS	XXXXXXX	2,800.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	2,800.00
12	1	LMP SUM	BLAST DOWN/EXCAVATE MINE ROOF	XXXXXXX	3,750.00	1.00	0.00	0.00	0.37	0.00	0.00	0.00	1.37	3,750.00	0.00	0.00	1,400.00	0.00	0.00	0.00	5,150.00
13	1	LMP SUM	EXCAVATE CHECK DITCHES	XXXXXXX	825.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	825.00	0.00	0.00	0.00	0.00	0.00	0.00	825.00
14	1	LMP SUM	EXCAVATE COAL DISPOSAL PIT AND STRIP OVERBURDEN FROM BURNING COAL AND STOCKPILE MATERIAL (INCLUDE HAUL ROAD)	XXXXXXX	465.00	1.00	0.00	2.65	0.00	5.86	13.94	0.00	23.45	465.00	0.00	1,230.00	0.00	2,725.00	6,482.00	0.00	10,902.00
15	1	LMP SUM	EXCAVATE AND EXTINGUISH BURNING COAL	XXXXXXX	675.00	1.00	0.00	3.63	0.00	5.81	6.37	0.00	16.81	675.00	0.00	2,450.00	0.00	3,925.00	4,300.00	0.00	11,350.00
16	1	LMP SUM	PLACE OVERBURDEN FROM STOCKPILES AND REGRADE	XXXXXXX	465.00	1.00	0.00	2.65	0.00	5.86	5.97	0.00	15.48	465.00	0.00	1,230.00	0.00	2,725.00	2,778.00	0.00	7,198.00
17	1	LMP SUM	BACKFILL SUBSIDENCE AND/OR COLLAPSED ADIT DEPRESSIONS	XXXXXXX	2,110.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2,110.00	0.00	0.00	0.00	0.00	0.00	0.00	2,110.00
18	1	LMP SUM	EXCAVATE STREAM CHANNEL	XXXXXXX	365.50	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	365.50	0.00	0.00	0.00	0.00	0.00	0.00	365.50
19	1	LMP SUM	REGRADE COAL SLACK MATERIAL	XXXXXXX	215.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	215.00	0.00	0.00	0.00	0.00	0.00	0.00	215.00
20	2.66	ACRES	LIME PLACEMENT	1880.00	5,000.80	2.591	0.019	0.100	0.000	0.110	0.100	0.000	2.920	4,871.08	35.72	188.00	0.00	206.80	188.00	0.00	5,489.60
21	1	LMP SUM	PROVIDE TOPSOIL FROM BORROW AREAS	XXXXXXX	3,561.25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	1.01	3,561.25	30.00	0.00	0.00	0.00	0.00	0.00	3,591.25
22	8.34	ACRES	FERTILIZE, SEED AND HAY MULCH	1223.00	10,199.82	8.322	0.098	0.53	0.00	0.81	0.55	0.00	10.31	10,177.81	119.85	648.19	0.00	990.63	672.65	0.00	12,609.13
23	3539	L. FEET	FARM FENCE - TYPE F-4M	0.75	2,654.25	4481.00	0.00	812.00	0.00	513.00	748.00	0.00	6554.00	3,360.75	0.00	609.00	0.00	384.75	561.00	0.00	4,915.50
24	41	EACH	FARM FENCE DOUBLE PANEL	90.00	3,690.00	32.00	0.00	8.00	0.00	4.00	5.00	0.00	49.00	2,880.00	0.00	720.00	0.00	360.00	450.00	0.00	4,410.00
25	17	EACH	FARM FENCE SINGLE PANEL	60.00	1,020.00	16.00	0.00	2.00	0.00	0.00	3.00	0.00	21.00	960.00	0.00	120.00	0.00	0.00	180.00	0.00	1,260.00
26	112	L. FEET	12 FARM FENCE GATES TYPE G-2	4.70	526.40	113.00	0.00	16.00	0.00	0.00	32.00	0.00	161.00	531.10	0.00	75.20	0.00	0.00	150.40	0.00	756.70
SUBTOTALS					$59,350.52									$57,149.99	$1,045.57	$10,077.89	$1,400.00	$15,964.68	$19,900.05	$400.00	$105,938.18
ITEMS NOT LISTED UNDER ORIGINAL CONTRACT																					
27	0	SQ FT	EROSION CONTROL BLANKET	2.25	0.00	0.00	0.00	0.00	0.00	2,000.0	720.00	0.00	2,720.00	0.00	0.00	0.00	0.00	4,500.00	1,620.00	0.00	6,120.00
28		L. FEET	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00	800.00	800.00
TOTALS					$59,350.52									$57,149.99	$1,045.57	$10,077.89	$1,400.00	$20,464.68	$21,520.05	$1,200.00	$112,858.18

Musselshell-Yellowstone 88 Project
Pay Request Summary

	Request No. 1	Request No. 2	Request No. 3	Request No. 4	Request No. 5	Request No. 6	Request No. 7	Totals
Work Done	$12,194.45	$3,125.50	$14,140.27	$19,536.12	$34,202.85	$15,631.23	$14,027.76	$112,858.18
Amount Withheld (10%)	(1,219.45)	(312.55)	(1,414.02)	(1,953.61)	(3,420.29)	(1,563.12)	0.00	(9,883.04)
Previous Amount Withheld	0.00	0.00	0.00	0.00	0.00	0.00	9,883.04	9,883.04
Amount Earned	10,975.00	2,812.95	12,726.25	17,582.51	30,782.56	14,068.11	23,910.80	112,858.18
Gross Proceeds (1%)	(109.75)	(28.13)	(127.26)	(175.83)	(307.83)	(140.68)	(239.10)	(1,128.58)
AMOUNT DUE CONTRACTOR	$10,865.25	$2,784.82	$12,598.99	$17,406.68	$30,474.73	$13,927.43	$23,671.70	$111,729.60

RECEIVED
APR 6 1989
STATE LANDS

SECTION II

2.12 CHANGE ORDER

Order No. 1

Date: 3/30/89

Agreement Date: 11/16/88

NAME OF PROJECT: Musselshell-Yellowstone 88

OWNER: Montana Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Willie E. Baxter Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show Percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
	Brown Charter Coal Fire Site Added Site - See Attached						10,366.12
	Carlson Coal Fire Site Added Site - See Attached						19,299.62
	Brown Ranch Incline Site Added Site - See Attached						1,400.00
	TOTAL COST - MAT'LS, LABOR, EQUIPMENT & MISC.						$31,065.74
	OVERHEAD & PROFIT @ %						N/A
	GRAND TOTAL - THIS CHANGE ORDER						$31,065.74

Original Contract Price $59,350.52

Current Contract Price Adjusted by Previous Change Order 59,350.52

Cost this Change Order (+ or -) 31,065.74

New Contract Price Including this Change Order $90,416.26

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 28 calendar days.

The date for completion of all work will be 103 days after spring start-up .

Description and Justification for Change:

1. Unit prices for additional work are consistent with those for original contract work.

2. Lump Sum prices for additional work are reasonable for the terrain and conditions.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bonds shall apply and extend to the contract as there by modified or amended per this Change Order. The Principal and the surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by Thirty-one thousand, sixty-five and 74/100's dollars ($ 31,065.74) (one hundred (100) percent of the Change Order amount) and the penalty of the applicable Payment Bond or Bonds is hereby increased by Thirty-one thousand, sixty-five and 74/100 dollars ($ 31,065.74) (one hundred (100) percent of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

COUNTERSIGNED
FBS INSURANCE MONTANA-HOINESS-LaBAR INC.
Kip W. Vandeventer
MONTANA RESIDENT AGENT

SURETY

BOND No. TPI1354672

TRANSAMERICA PREMIER INSURANCE COMPANY

By: Kip W. Vandeventer
(Seal)

KIP W. VANDEVENTER
ATTORNEY-IN-FACT

Recommended by: Gary A Rose, Engineer

Accepted by: Ed Batte, Contractor

Approved by: Susan McAuley, Owner

SECTION II

2.12 CHANGE ORDER

RECEIVED
MAY 25 1989
STATE LANDS

Order No. 2

Date: 5/16/89

Agreement Date: 11/16/88

NAME OF PROJECT: Musselshell-Yellowstone 88

OWNER: Montana Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Willie E. Baxter Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show Percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
	Janich 20 New Adit Site Site Added Site - See Attached						1,007.21

TOTAL COST - MAT'LS, LABOR, EQUIPMENT & MISC.		$ 1,007.21
OVERHEAD & PROFIT @	%	N/A
GRAND TOTAL - THIS CHANGE ORDER		$ 1,007.21

Original Contract Price	$59,350.52
Current Contract Price Adjusted by Previous Change Order	90,416.26
Cost this Change Order (+ or -)	1,007.21
New Contract Price Including this Change Order	$91,423.47

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 7 calendar days.

The date for completion of all work will be August 26 (see attached memo).

Description and Justification for Change:

1.Unit prices for additional work are consistent with those for original contract work.

2.Lump Sum prices for additional work are reasonable for the terrain and conditions.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bonds shall apply and extend to the contract as there by modified or amended per this Change Order. The Principal and the surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by One thousand seven and 21/100's dollars ($ 1,007.21) (one hundred (100) percent of the Change Order amount) and the penalty of the applicable Payment Bond or Bonds is hereby increased by One thousand seven and 21/100 dollars ($ 1,007.21) (one hundred (100) percent of the Change Order amount).

COUNTERSIGNED BY MONTANASURETY
RESIDENT AGENT

_____

_____ By: _____
(Seal)

Recommended by: Gary W Rowe, Engineer

Accepted by: Edward Bates, Contractor

Approved by: Susan McNally, Owner

SECTION II

2.12 CHANGE ORDER

Order No. 3

Date: 7/12/89

Agreement Date: 11/16/88

NAME OF PROJECT: Musselshell-Yellowstone 88

Yellowstone and Musselshell Counties, Montana MONT A/E 88-46-123

OWNER: Montana Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Willie E. Baxter Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show Percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Wade Coal Fire #2 Site						$22,384.03
	TOTAL COST - MAT'LS, LABOR, EQUIPMENT & MISC.					$22,384.03	
	OVERHEAD & PROFIT @ %					N/A	
	GRAND TOTAL - THIS CHANGE ORDER					$22,384.03	

Original Contract Price	$59,350.52
Current Contract Price Adjusted by Previous Change Order	91,423.47
Cost this Change Order (+ or -)	22,384.03
New Contract Price Including this Change Order	$113,807.50

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 28 calendar days.

The date for completion of all work will be September 11, 1989.

Description and Justification for Change:

1. Unit prices for additional work are consistent with those for original contract work.

2. Lump Sum prices for additional work are reasonable for the terrain and conditions.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bonds shall apply and extend to the contract as there by modified or amended per this Change Order. The Principal and the surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by Twenty-two thousand, three hundred eighty-four and 03/100 ($ 22,384.03) (one hundred (100) percent of the Change Order amount) and the penalty of the applicable Payment Bond or Bonds is hereby increased by Twenty-two thousand, three hundred eighty-four and 03/100 ($ 22,384.03) (one hundred (100) percent of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

FBS Insurance Montana, Inc.
FBS Insurance Billings
Countersigned by:
Kip W. VanDeventer
Montana Resident Agent

SURETY TRANSAMERICA PREMIER INSURANCE COM

Kip W. VanDeventer

By: KIP W. VANDEVENTER
(Seal) ATTORENY-IN-FACT

Recommended by: Gary W Rome, Engineer

Accepted by: [signature], Contractor

Approved by: Larry Marshall, Owner

SECTION II

2.12 CHANGE ORDER

Order No. 4

Date: 12/7/89

Agreement Date: 11/16/88

NAME OF PROJECT: Musselshell-Yellowstone 88

OWNER: Montana Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Willie E. Baxter Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show Percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
	Antelope Mine Maintenance						
1.	Mobilization	Lump Sum					$ 300.00
9.	Regrade Area Near Backfilled Adit	Lump Sum					100.00
28.	Provide & Install 18-inch Diameter CMP Culvert - 40 L.Feet					20.00	800.00
	SUBTOTAL						$ 1,200.00
	Carlson Coal Fire						
14.	Excavate Disposal Pit and Strip Overburden and Stockpile	Adjustment of Initial Lump Sum Est. $2,725.00 - $4,123.50					$(1,398.50)
15.	Excavate and Extinguish Burning Coal	Adjustment of Initial Lump Sum Est. $3,925.00 - $350.00					3,575.00
16.	Place Overburden from Stockpiles and Regrade	Adjustment of Initial Lump Sum Est. $2,725.00 - $4,083.50					(1,358.50)
	SUBTOTAL						$ 818.00
6.	Provide Water: 43.40 - 173.90 = -130.50 KGAL					25.00	(3,262.50)
20.	Lime Placement: 2.92 - 2.894 = +0.026 Acres					1,880.00	48.87
22.	Fertilize, Seed and Hay Mulch: 10.31 - 9.94 = +0.37 Acres					1,223.00	452.51
23.	Farm Fence - Type F-4M: 6,554 - 4,789 = +1,765 L. Feet					0.75	1,323.75
24.	Farm Fence Double Panel: 49 - 63 = -14 Each					90.00	(1,260.00)
25.	Farm Fence Single Panel: 21 - 20 = + 1 Each					60.00	60.00
26.	Fence Gates - Type G-2: 161 - 157 = + 4 L. Feet					4.70	18.80
27.	Erosion Control Blanket: 2,720 - 2,875 = - 155 Sq Yd					2.25	(348.75)
	TOTAL COST - MAT'LS, LABOR, EQUIPMENT & MISC.						$ (949.32)
	OVERHEAD & PROFIT @ %						N/A
	GRAND TOTAL - THIS CHANGE ORDER						$ (949.32)

Original Contract Price $59,350.52

Current Contract Price Adjusted by Previous Change Order 113,807.50

Cost this Change Order (+ or -) (949.32)

New Contract Price Including this Change Order 112,858.18

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by _____ calendar days.

The date for completion of all work will be 11/21/1989.

Description and Justification for Change:

Antelope Mine Maintenance Work

The scope of work was negotiated by the Contractor, the landowner, the engineer, and the AMR representative. Lump sum and unit prices for the work were negotiated between the engineer and the Contractor. These costs are reasonable for the terrain and conditions.

Carlson Coal Fire

The extent of the coal seam fire was different than initially thought. The work was better characterized by less stripping and replacing of overburden and more excavating and extinguishing of coal. Adjustments of the lump sum prices were made based on the number of yards from load counts of overburden stripped and replaced and coal moved and extinguished.

Items 6, 20, 22, 23, 24, 25, 26, 27

Reconciliation of quantities. Unit prices are the same as the original bid.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bonds shall apply and extend to the contract as there by modified or amended per this Change Order. The Principal and the surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bond or Bonds is hereby increased by _____ _____($_____) (one hundred (100) percent of the Change Order amount) and the penalty of the applicable Payment Bond or Bonds is hereby increased by _____ _____($_____) (one hundred (100) percent of the Change Order amount).

COUNTERSIGNED BY MONTANASURETY
RESIDENT AGENT

_____

_____ By:_____
(Seal)

Recommended by: Gary W Rowe, Engineer

Accepted by: Ed Bartee, Contractor

Approved by: Larry Marshall, Owner

APPENDIX C

ENGINEERING VERSUS

CONSTRUCTION COST ANALYSIS

MUSSELSHELL - YELLOWSTONE 88
FINAL REPORT

ANALYSIS OF PROFESSIONAL SERVICE FEES
DATE OF PREPARATION: FEBRUARY 12, 1990

PROFESSIONAL SERVICE		AMOUNT
o	Data Gathering, Site Evaluation, Mapping, Preliminary and Final Engineering, Bid Documents	$ 42,659.55
o	Construction Administration, Construction Inspection, Final Report Preparation	$ 57,480.38
	SPECTRUM ENGINEERING COSTS	$100,139.93
	FINAL CONSTRUCTION COST	$112,858.18

PERCENTAGE ANALYSIS	PERCENT
DESIGN ENGINEERING COST COMPARED TO CONSTRUCTION COST	37.8 %
CONSTRUCTION ENGINEERING COST COMPARED TO CONSTRUCTION COST	50.9 %
TOTAL ENGINEERING COST COMPARED TO CONSTRUCTION COST	88.7 %

REMARKS: Services provided include lien determination, landowner contact and consent, budget preparation, grant application, weed board approval, basic engineering, construction staking, contract administration, quantity accounting and full time construction/reclamation inspection. The project involved seventeen sites with diverse reclamation requirements.

APPENDIX D

BID TABULATION AND

ENGINEER'S ESTIMATE

Abandoned Mine Reclamation Bureau

MUSSELSHELL-YELLOWSTONE 88 PROJECT
MUSSELSHELL AND YELLOWSTONE COUNTIES
MONT A/E 88-46-123

Bid Opening: October 26, 1988

Item No.	Est. Quantity	Unit	Description	ENGINEER'S ESTIMATE Spectrum Engineering Billings, Montana Unit Price	ENGINEER'S ESTIMATE Spectrum Engineering Billings, Montana Total Price	Willie E. Baxter Const. Billings 4884A Unit Price	Willie E. Baxter Const. Billings 4884A Total Price	Donnes Constr. Billings 5996A Unit Price	Donnes Constr. Billings 5996A Total Price	Buster's Constr. Billings 6823A Unit Price	Buster's Constr. Billings 6823A Total Price	Montgomery Constr. Hilger 6290A Unit Price	Montgomery Constr. Hilger 6290A Total Price
1	1	LUMP SUM	MOBILIZATION	XXXXXXX	$14,500.00	XXXXXXX	$6,000.00	XXXXXXX	$21,679.80	XXXXXXX	$11,000.00	XXXXXXX	$8,600.00
2	1	LUMP SUM	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	XXXXXXX	700.00	XXXXXXX	1,300.00	XXXXXXX	1,200.00	XXXXXXX	640.00	XXXXXXX	1,200.00
3	1	LUMP SUM	DEBRIS CLEANUP	XXXXXXX	9,000.00	XXXXXXX	880.00	XXXXXXX	2,000.00	XXXXXXX	1,100.00	XXXXXXX	2,200.00
4	1	LUMP SUM	CLEARING AND GRUBBING	XXXXXXX	1,000.00	XXXXXXX	460.00	XXXXXXX	1,000.00	XXXXXXX	300.00	XXXXXXX	500.00
5	1	LUMP SUM	SALVAGE AND REPLACE TOPSOIL	XXXXXXX	17,600.00	XXXXXXX	4,400.00	XXXXXXX	4,400.00	XXXXXXX	8,800.00	XXXXXXX	16,870.00
6	82.8	KGAL	PROVIDE WATER	50.00	4,140.00	25.00	2,070.00	10.00	828.00	100.00	8,280.00	50.00	4,140.00
7	11	EACH	CLOSE MINE OPENINGS	400.00	4,400.00	300.00	3,300.00	275.00	3,025.00	182.00	2,002.00	300.00	3,300.00
8	1	EACH	ADIT GRATE INSTALLATION	800.00	800.00	750.00	750.00	2000.00	2,000.00	750.00	750.00	1500.00	1,500.00
9	1	LUMP SUM	REGRADE AREA	XXXXXXX	1,960.00	XXXXXXX	980.00	XXXXXXX	500.00	XXXXXXX	750.00	XXXXXXX	1,500.00
10	1	LUMP SUM	EXCAVATE & REGRADE STOCK POND	XXXXXXX	2,840.00	XXXXXXX	887.50	XXXXXXX	1,000.00	XXXXXXX	1,000.00	XXXXXXX	1,500.00
11	1	LUMP SUM	EXCAVATE SUBSIDENCE DEPRESSION OVERHANGS	XXXXXXX	450.00	XXXXXXX	2,800.00	XXXXXXX	500.00	XXXXXXX	250.00	XXXXXXX	336.00
12	1	LUMP SUM	BLAST DOWN/EXCAVATE MINE ROOF	XXXXXXX	1,000.00	XXXXXXX	3,750.00	XXXXXXX	250.00	XXXXXXX	750.00	XXXXXXX	750.00
13	1	LUMP SUM	EXCAVATE CHECK DITCHES	XXXXXXX	660.00	XXXXXXX	825.00	XXXXXXX	850.00	XXXXXXX	500.00	XXXXXXX	500.00
14	1	LUMP SUM	EXCAVATE COAL DISPOSAL PIT AND STRIP OVERBURDEN FROM BURNING COAL AND STOCKPILE MATERIAL	XXXXXXX	1,860.00	XXXXXXX	465.00	XXXXXXX	500.00	XXXXXXX	800.00	XXXXXXX	3,200.00
15	1	LUMP SUM	EXCAVATE AND EXTINGUISH BURNING COAL	XXXXXXX	540.00	XXXXXXX	675.00	XXXXXXX	4,050.00	XXXXXXX	675.00	XXXXXXX	500.00
16	1	LUMP SUM	PLACE OVERBURDEN FROM STOCKPILES AND REGRADE	XXXXXXX	1,860.00	XXXXXXX	465.00	XXXXXXX	500.00	XXXXXXX	375.00	XXXXXXX	500.00
17	1	LUMP SUM	BACKFILL SUBSIDENCE AND/OR COLLAPSED ADIT DEPRESSIONS	XXXXXXX	4,220.00	XXXXXXX	2,110.00	XXXXXXX	1,000.00	XXXXXXX	1,500.00	XXXXXXX	3,000.00
18	1	LUMP SUM	EXCAVATE STREAM CHANNEL	XXXXXXX	1,720.00	XXXXXXX	365.50	XXXXXXX	500.00	XXXXXXX	500.00	XXXXXXX	1,290.00
19	1	LUMP SUM	REGRADE COAL SLACK MATERIAL	XXXXXXX	860.00	XXXXXXX	215.00	XXXXXXX	200.00	XXXXXXX	200.00	XXXXXXX	600.00
20	2.66	ACRES	LIME PLACEMENT	2500.00	6,650.00	1880.00	5,000.80	2002.00	5,320.00	3383.46	9,000.00	1000.00	2,660.00
21	1	LUMP SUM	PROVIDE TOPSOIL FROM BORROW AREAS	XXXXXXX	8,140.00	XXXXXXX	3,561.25	XXXXXXX	2,000.00	XXXXXXX	2,800.00	XXXXXXX	6,105.00
22	8.34	ACRES	FERTILIZE, SEED AND HAY MULCH	3000.00	25,020.00	1223.00	10,199.82	1000.00	8,340.00	2000.00	16,680.00	1000.00	8,340.00
23	3539	L. FEET	FARM FENCE - TYPE F-4M	1.00	3,539.00	0.75	2,654.25	0.80	2,831.20	1.10	3,892.90	1.00	3,539.00
24	41	EACH	FARM FENCE DOUBLE PANEL	125.00	5,125.00	90.00	3,690.00	75.00	3,075.00	75.00	3,075.00	200.00	8,200.00
25	17	EACH	FARM FENCE SINGLE PANEL	80.00	1,360.00	60.00	1,020.00	50.00	850.00	50.00	850.00	100.00	1,700.00
26	112	L. FEET	12 FARM FENCE GATES - TYPE G-2	8.00	896.00	4.70	526.40	10.00	1,120.00	5.00	560.00	5.00	560.00
TOTAL BASE BID					$120,840.00		$59,350.52		$69,519.00		$77,029.90		$83,090.00

Abandoned Mine Reclamation Bureau

MUSSELSHELL-YELLOWSTONE 88 PROJECT
MUSSELSHELL AND YELLOWSTONE COUNTIES
MONT A/E 88-46-123

Bid Opening: October 26, 1988

Item No.	Est. Quantity	Unit	Description	Shumaker Trucking Great Falls 5199A Unit Price	Shumaker Trucking Great Falls 5199A Total Price	Stevens and Feller Billings 6224A Unit Price	Stevens and Feller Billings 6224A Total Price	Jim's Excavating Billings 3061A Unit Price	Jim's Excavating Billings 3061A Total Price	Barber Excavating Belt 6570A Unit Price	Barber Excavating Belt 6570A Total Price
1	1	LUMP SUM	MOBILIZATION	XXXXXXX	$9,000.00	XXXXXXX	$16,000.00	XXXXXXX	$8,000.00	XXXXXXX	$43,000.00
2	1	LUMP SUM	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	XXXXXXX	1,400.00	XXXXXXX	3,500.00	XXXXXXX	960.00	XXXXXXX	1,600.00
3	1	LUMP SUM	DEBRIS CLEANUP	XXXXXXX	1,500.00	XXXXXXX	7,500.00	XXXXXXX	1,800.00	XXXXXXX	4,400.00
4	1	LUMP SUM	CLEARING AND GRUBBING	XXXXXXX	2,000.00	XXXXXXX	1,750.00	XXXXXXX	600.00	XXXXXXX	4,000.00
5	1	LUMP SUM	SALVAGE AND REPLACE TOPSOIL	XXXXXXX	13,000.00	XXXXXXX	8,600.00	XXXXXXX	10,500.00	XXXXXXX	10,000.00
6	82.8	KGAL	PROVIDE WATER	80.00	6,624.00	100.00	8,280.00	62.50	5,175.00	120.00	9,936.00
7	11	EACH	CLOSE MINE OPENINGS	150.00	1,650.00	350.00	3,850.00	300.00	3,300.00	300.00	3,300.00
8	1	EACH	ADIT GRATE INSTALLATION	2000.00	2,000.00	1200.00	1,200.00	1500.00	1,500.00	1000.00	1,000.00
9	1	LUMP SUM	REGRADE AREA	XXXXXXX	980.00	XXXXXXX	490.00	XXXXXXX	2,000.00	XXXXXXX	1,000.00
10	1	LUMP SUM	EXCAVATE & REGRADE STOCK POND	XXXXXXX	3,065.00	XXXXXXX	750.00	XXXXXXX	2,000.00	XXXXXXX	1,000.00
11	1	LUMP SUM	EXCAVATE SUBSIDENCE DEPRESSION OVERHANGS	XXXXXXX	500.00	XXXXXXX	250.00	XXXXXXX	1,000.00	XXXXXXX	612.00
12	1	LUMP SUM	BLAST DOWN/EXCAVATE MINE ROOF	XXXXXXX	1,500.00	XXXXXXX	1,500.00	XXXXXXX	2,500.00	XXXXXXX	1,000.00
13	1	LUMP SUM	EXCAVATE CHECK DITCHES	XXXXXXX	660.00	XXXXXXX	350.00	XXXXXXX	780.00	XXXXXXX	1,000.00
14	1	LUMP SUM	EXCAVATE COAL DISPOSAL PIT AND STRIP OVERBURDEN FROM BURNING COAL AND STOCKPILE MATERIAL	XXXXXXX	2,000.00	XXXXXXX	1,395.00	XXXXXXX	2,200.00	XXXXXXX	1,500.00
15	1	LUMP SUM	EXCAVATE AND EXTINGUISH BURNING COAL	XXXXXXX	1,500.00	XXXXXXX	1,750.00	XXXXXXX	1,350.00	XXXXXXX	1,000.00
16	1	LUMP SUM	PLACE OVERBURDEN FROM STOCKPILES AND REGRADE	XXXXXXX	300.00	XXXXXXX	465.00	XXXXXXX	1,820.00	XXXXXXX	500.00
17	1	LUMP SUM	BACKFILL SUBSIDENCE AND/OR COLLAPSED ADIT DEPRESSIONS	XXXXXXX	5,000.00	XXXXXXX	1,250.00	XXXXXXX	3,100.00	XXXXXXX	1,500.00
18	1	LUMP SUM	EXCAVATE STREAM CHANNEL	XXXXXXX	1,753.00	XXXXXXX	600.00	XXXXXXX	1,500.00	XXXXXXX	1,000.00
19	1	LUMP SUM	REGRADE COAL SLACK MATERIAL	XXXXXXX	1,300.00	XXXXXXX	250.00	XXXXXXX	650.00	XXXXXXX	500.00
20	2.66	ACRES	LIME PLACEMENT	1200.00	3,192.00	2000.00	5,320.00	1315.00	3,497.90	1200.00	3,192.00
21	1	LUMP SUM	PROVIDE TOPSOIL FROM BORROW AREAS	XXXXXXX	4,579.00	XXXXXXX	3,052.00	XXXXXXX	3,500.00	XXXXXXX	7,100.00
22	8.34	ACRES	FERTILIZE, SEED AND HAY MULCH	1700.00	14,178.00	1500.00	12,510.00	3000.00	25,020.00	1295.00	10,800.30
23	3539	L. FEET	FARM FENCE - TYPE F-4M	0.90	3,185.10	1.25	4,423.75	2.50	8,847.50	1.25	4,423.75
24	41	EACH	FARM FENCE DOUBLE PANEL	90.00	3,690.00	150.00	6,150.00	200.00	8,200.00	85.00	3,485.00
25	17	EACH	FARM FENCE SINGLE PANEL	75.00	1,275.00	100.00	1,700.00	175.00	2,975.00	55.00	935.00
26	112	L. FEET	12 FARM FENCE GATES - TYPE G-2	5.00	560.00	3.00	336.00	22.50	2,520.00	8.00	896.00
TOTAL BASE BID					$86,391.10		$93,221.75		$105,295.40		$118,680.05

Abandoned Mine Reclamation Bureau

STATISTICS

MUSSELSHELL-YELLOWSTONE 88 PROJECT
MUSSELSHELL AND YELLOWSTONE COUNTIES
MONT A/E 88-46-123

Bid Opening: October 26, 1988 Page 1 of 1

ENGINEER'S ESTIMATE
Spectrum Engineering
Billings, Montana

Item No.	Est. Quantity	Unit	Description	Unit Price	Total Price	BID RANGE $ PER UNIT LOW	BID RANGE $ PER UNIT HIGH	BID RANGE $ PER UNIT AVERAGE	BID RANGE TOTAL COST LOW	BID RANGE TOTAL COST HIGH	BID RANGE TOTAL COST AVERAGE
1	1	LUMP SUM	MOBILIZATION	XXXXXXX	$14,500.00	$6,000.00	$43,000.00	$15,409.98	$6,000.00	$43,000.00	$15,409.98
2	1	LUMP SUM	PROVIDE AND INSTALL 24-INCH DIAMETER CMP CULVERT (40 FT)	XXXXXXX	700.00	640.00	3,500.00	1,475.00	640.00	3,500.00	1,475.00
3	1	LUMP SUM	DEBRIS CLEANUP	XXXXXXX	9,000.00	880.00	7,500.00	2,672.50	880.00	7,500.00	2,672.50
4	1	LUMP SUM	CLEARING AND GRUBBING	XXXXXXX	1,000.00	300.00	4,000.00	1,326.25	300.00	4,000.00	1,326.25
5	1	LUMP SUM	SALVAGE AND REPLACE TOPSOIL	XXXXXXX	17,600.00	4,400.00	16,870.00	9,571.25	4,400.00	16,870.00	9,571.25
6	82.8	KGAL	PROVIDE WATER	50.00	4,140.00	10.0000	120.0000	68.4375	828.00	9,936.00	5,666.63
7	11	EACH	CLOSE MINE OPENINGS	400.00	4,400.00	150.0000	350.0000	269.6250	1,650.00	3,850.00	2,965.88
8	1	EACH	ADIT GRATE INSTALLATION	800.00	800.00	750.0000	2000.0000	1337.5000	750.00	2,000.00	1,337.50
9	1	LUMP SUM	REGRADE AREA	XXXXXXX	1,960.00	490.00	2,000.00	1,025.00	490.00	2,000.00	1,025.00
10	1	LUMP SUM	EXCAVATE & REGRADE STOCK POND	XXXXXXX	2,840.00	750.00	3,065.00	1,400.31	750.00	3,065.00	1,400.31
11	1	LUMP SUM	EXCAVATE SUBSIDENCE DEPRESSION OVERHANGS	XXXXXXX	450.00	250.00	2,800.00	781.00	250.00	2,800.00	781.00
12	1	LUMP SUM	BLAST DOWN/EXCAVATE MINE ROOF	XXXXXXX	1,000.00	250.00	3,750.00	1,500.00	250.00	3,750.00	1,500.00
13	1	LUMP SUM	EXCAVATE CHECK DITCHES	XXXXXXX	660.00	350.00	1,000.00	683.13	350.00	1,000.00	683.13
14	1	LUMP SUM	EXCAVATE COAL DISPOSAL PIT AND STRIP OVERBURDEN FROM BURNING COAL AND STOCKPILE MATERIAL	XXXXXXX	1,860.00	465.00	3,200.00	1,507.50	465.00	3,200.00	1,507.50
15	1	LUMP SUM	EXCAVATE AND EXTINGUISH BURNING COAL	XXXXXXX	540.00	500.00	4,050.00	1,437.50	500.00	4,050.00	1,437.50
16	1	LUMP SUM	PLACE OVERBURDEN FROM STOCKPILES AND REGRADE	XXXXXXX	1,860.00	300.00	1,820.00	615.63	300.00	1,820.00	615.63
17	1	LUMP SUM	BACKFILL SUBSIDENCE AND/OR COLLAPSED ADIT DEPRESSIONS	XXXXXXX	4,220.00	1,000.00	5,000.00	2,307.50	1,000.00	5,000.00	2,307.50
18	1	LUMP SUM	EXCAVATE STREAM CHANNEL	XXXXXXX	1,720.00	365.50	1,753.00	938.56	365.50	1,753.00	938.56
19	1	LUMP SUM	REGRADE COAL SLACK MATERIAL	XXXXXXX	860.00	200.00	1,300.00	489.38	200.00	1,300.00	489.38
20	2.66	ACRES	LIME PLACEMENT	2500.00	6,650.00	1000.0000	3383.4600	1747.3075	2,660.00	9,000.00	4,647.84
21	1	LUMP SUM	PROVIDE TOPSOIL FROM BORROW AREAS	XXXXXXX	8,140.00	2,000.00	7,100.00	4,087.16	2,000.00	7,100.00	4,087.16
22	8.34	ACRES	FERTILIZE, SEED AND HAY MULCH	3000.00	25,020.00	1000.0000	3000.0000	1589.7500	8,340.00	25,020.00	13,258.52
23	3539	L. FEET	FARM FENCE - TYPE F-4M	1.00	3,539.00	0.7500	2.5000	1.1938	2,654.25	8,847.50	4,224.68
24	41	EACH	FARM FENCE DOUBLE PANEL	125.00	5,125.00	75.0000	200.0000	120.6250	3,075.00	8,200.00	4,945.63
25	17	EACH	FARM FENCE SINGLE PANEL	80.00	1,360.00	50.0000	175.0000	83.1250	850.00	2,975.00	1,413.13
26	112	L. FEET	12 FARM FENCE GATES - TYPE G-2	8.00	896.00	3.0000	22.5000	7.9000	336.00	2,520.00	884.80
TOTAL BASE BID					$120,840.00				$40,283.75	$184,056.50	$86,572.22